

# NETWORK WORLD

The Newsweekly of User Networking Strategies

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## Token-ring users sound off to OTF

By Gail Runnoe  
Washington Correspondent

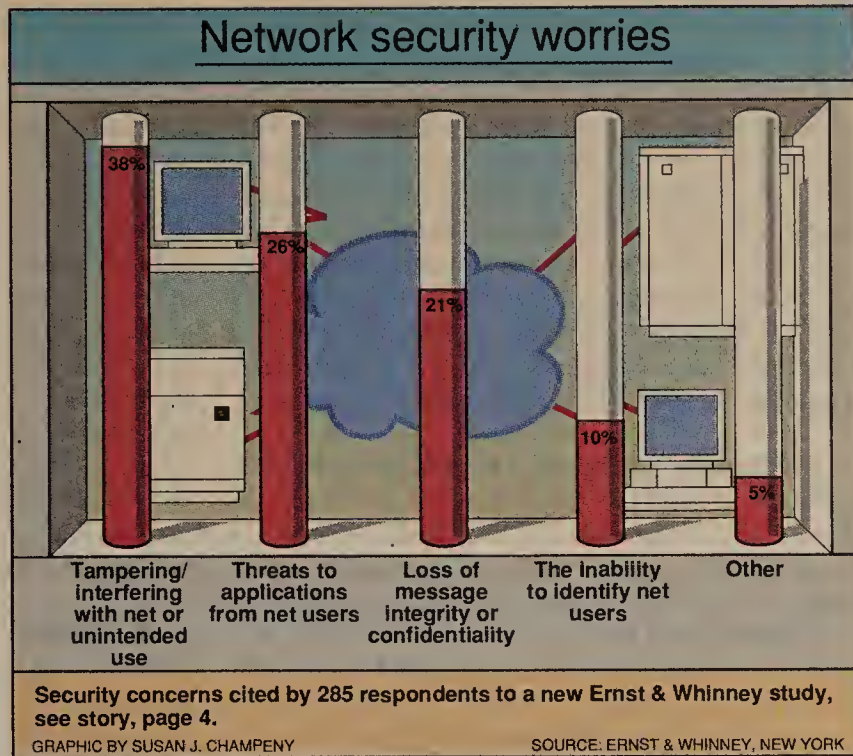
ST. LOUIS — Leading token-ring network users last week told vendors in the Open Token Foundation (OTF) they should work harder to ensure interoperability of products.

Top network executives from American Airlines, Inc., Coca-Cola Foods, Electronic Data Systems Corp. and Shell Oil Co. said OTF members must bring easy-to-install products to market, provide better technical support and cooperate in conducting interoperability testing.

Some also called for IBM to join OTF to assure buyers that token-ring products from multiple vendors will work together. The users addressed the OTF at its first public meeting here. The foundation was formed late last year to promote interoperability of token-ring products and to spur usage of the local networking system ("Network makers team up in token-ring association," *NW*, Dec. 5, 1988).

Jim Brandenburg, senior systems analyst with Shell Oil, urged vendors to put aside their differences and work together to remedy service problems in multiven-

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## Transport Canada devises distributed processing plan

By Paul Desmond  
Senior Writer

OTTAWA — Transport Canada last week detailed plans to migrate its IBM SNA network to a distributed OSI net based on an X.25 backbone supporting hundreds of minicomputers.

Faced with increasing processing demands on its IBM network and decreasing funds and staff, Transport Canada — the Canadian equivalent of the U.S. Department of Transportation — devised a plan to ease the burden on

its mainframe by distributing processing to 500 or more mid-range processors.

The minicomputers will run a version of Unix created by gleaning the common elements from versions of the operating system backed by the Open Software Foundation (OSF), which is spearheaded by IBM, and Unix International, Inc., which is led by AT&T.

The project, estimated to cost \$235 million over five years,

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## Sikes gets Bush nod to fill top FCC post

Nominee says his first task as chairman will be to set national telecommunications policy goals.

By Anita Taff  
Washington Bureau Chief

WASHINGTON, D.C. — After weeks of anticipation, President Bush last week nominated Alfred Sikes to fill the top spot in the Federal Communications Commission.

It was originally expected that Sikes would be nominated as FCC chairman two weeks ago when Bush named Andrew Barrett and Sherrie Marshall as FCC commissioners. Speculation that Sikes would be named to the post began as early as February.

Sikes currently serves as assistant secretary for communications and information in the Department of Commerce and administrator of the National Telecommunications and Information Administration (NTIA).

White House officials have so far given no explanation for the delay in Sikes' nomination.

In an interview with *Network World* last week, Sikes said that if confirmed as chairman, his first goal would be to evaluate the telecommunications industry and set national policy priorities.

"Communications services are increasingly central to our



FCC nominee Alfred Sikes

economic and social progress, and I think we need a clear set of national goals," he said. "I think that would alleviate the regulatory gridlock between the FCC and Congress."

Sikes said he believes regulators have focused too much attention on "plain old telephone service," rather than evaluating how new technologies could be used

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## UB LAN plan halts users' wiring work

By Bob Brown  
Senior Writer

In the wake of Ungermann-Bass, Inc.'s pledge to support 16M bit/sec token-ring local networks on unshielded telephone wire, many users' wiring projects have ground to a halt.

The ability to use unshielded wire to support high-speed local networks, rather than the shielded wire IBM requires, will enable users to install the less expensive media with the knowledge that it can accommodate most future needs.

Ungermann-Bass, however, has yet to release pricing information for the components that enable its Access/One wiring concentrator to support 16M bit/sec on unshielded wire, leaving users and consultants wondering

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### NETLINE



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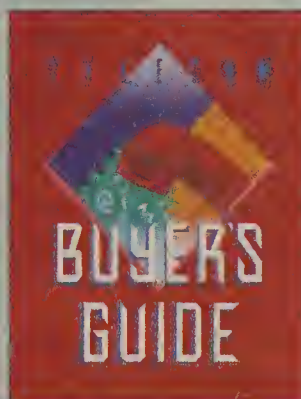
## Toll-free services market set for explosive growth

By Daniel Briere  
Special to Network World

Since AT&T introduced 800 service in 1967, toll-free numbers have become an integral part of business. The market will grow from \$5.1 billion this year to \$6.8 billion in 1992, says Steve Reynolds of Link Resources Corp., a New York market research firm.

Large and small companies alike can benefit from today's 800 services. The

base fee for an 800 line has dropped to as low as \$2.75 per month. That's less expensive than call waiting.



With new features and capabilities on the way, it will soon be hard to imagine how users ever got along without 800 service.

The public is also getting more accustomed to 800 numbers. More than 50% of all consumers used an 800

number at least once last

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# US Sprint may assimilate Telenet data network unit

Top carrier official says the decision to merge the companies could be made in a few weeks.

By Bob Wallace  
Senior Editor

NEW YORK - A top US Sprint Communications Co. official said last week the company is considering merging its Telenet Communications Corp. data network subsidiary into its core carrier business.

The integration would enable US Sprint to compete more effectively against AT&T and MCI Communications Corp. in providing users with custom-designed, integrated voice, data and video networks. The carrier stressed that no decisions have been made yet but said plans to integrate Telenet into US Sprint will likely be approved in the next several weeks. US Sprint would not say if integrating Telenet into its operations would cut the carrier's operating costs.

"Telenet as a company will be integrated into US Sprint, but its name will not disappear," said David Dorman, National Accounts Division president for US Sprint. "It's at the discussion and planning level now. We're looking at integrating product lines and ways to combine redundant operations."

A Telenet spokesman said

there is no approved corporate plan to merge Telenet into US Sprint. He said Telenet and US Sprint are trying to "achieve synergies wherever possible."

Dorman discussed the integration of Telenet into US Sprint at "Super Intelligent Networks: The Third Wave," a communications conference sponsored by The Yankee Group, a Boston-based consulting and research firm.

US Sprint will likely eliminate redundant operations, including sales, product line planning, research and development, and Integrated Services Digital Network development efforts, Dorman said.

"We think we can accomplish this without disrupting customer relationships or services," he added.

US Sprint would not say whether jobs will be eliminated by consolidation of operations.

Telenet recently created a new group that may be called upon to ease the transition if a US Sprint/Telenet integration is implemented. "What my organization does is bridge product offerings from the companies as we merge ourselves together into a

(continued on page 39)

# AT&T plans to pare 56K DDS service rates by 20%

New routing option will improve service reliability.

By Gail Runnoe  
Washington Correspondent

BASKING RIDGE, N.J. — AT&T said last week it will cut rates by 20% for its 56K bit/sec Dataphone Digital Services (DDS) and provide a new routing option to improve network reliability.

AT&T told the Federal Communications Commission the rate reductions were necessary to make the private-line service more competitive with offerings of rival carriers and to bring 56K bit/sec DDS pricing in line with pricing for its 9.6K bit/sec DDS and Accunet T1.5 services.

AT&T said it will reduce the fixed and per-mile charges for the service. Mileage charges are calculated using four mileage bands. For example, the price of a circuit from 101 to 500 miles long will include a \$571 fixed monthly charge plus \$2.32 per mile. Under the current rates, the same circuit would have a fixed monthly charge of \$713.50 plus \$2.90 per mile.

Under the new pricing, circuits between one and 50 miles long will be priced at a \$232 fixed

monthly charge plus \$7.74 per mile. Circuits from 51 to 100 miles long will be priced at a \$435 fixed monthly charge plus \$3.68 per mile. A circuit between 501 and 1,000 miles will have a \$1,081.40 fixed monthly charge plus \$1.30 per mile.

According to AT&T, the 20% reductions also apply to prices for 56K bit/sec DDS service offered under one-, three- and five-year fixed-rate plans, and to monthly totals applied to the DDS Volume Pricing and Multi-Service Volume Pricing plans.

The new rates are scheduled to take effect July 7.

Joaquin Gonzalez, partner at Ernst & Whinney/Network Strategies in Fairfax, Va., said AT&T's announcement illustrates the downward trend in digital service pricing due to increasing use of fiber-optic facilities networks.

"Beyond dropping through the floor, digital facility rates will burrow through to the core of the earth," Gonzalez said, making for "bandwidth too cheap to meter."

Gerald Mayfield, president of DMW Enterprises in Stamford,

(continued on page 38)

## Briefs

**US Sprint insight.** A top US Sprint Communications Co. official last week said the carrier will introduce its first network management system, dubbed Insight, next month. Insight software will run on IBM Personal Computers and compatibles and enable users to download traffic and alarm information from Digital Equipment Corp. VAXes and Northern Telecom, Inc. DMS 250 central office switches used in US Sprint's network.

Customers can use the data to analyze traffic patterns, optimize their networks for cost and performance and spot usage trends, according to Dave Dorman, president of US Sprint's National Accounts Division. Insight will first be sold as an optional feature with the carrier's Virtual Private Network service and later with its private-line service, Dorman said. US Sprint first developed Insight for use by the General Services Administration in its Federal Telecommunications System 2000 net, Dorman said.

**FCC acts on Tariff 12, price caps.** The Federal Communications Commission last week approved AT&T's revisions to five Tariff 12 arrangements that the agency had found unlawful in an April ruling. The custom network arrangements were for General Electric Co., Ford Motor Co., E.I. DuPont de Nemours & Co., American Airlines, Inc. and American Express Co. The FCC denied petitions for rejection of the revisions filed by MCI Telecommunications Corp., US Sprint Communications Co. and the Independent Data Communications Manufacturers Association.

The commission also last week denied objections

against new residential rates filed by AT&T, clearing the way for the carrier to begin operation under price cap regulation, which took effect Saturday.

AT&T proposed \$140 million in rate cuts for residential and small business customers in May to bring its prices in line with price cap specifications.

**U.S., Japan shake hands on trade.** The U.S. resolved a telecommunications trade dispute with Japan last week and put plans on hold to levy import tariffs on Japanese communications gear.

Last April, the Office of the U.S. Trade Representative (USTR) accused Japan of unfairly barring Motorola, Inc. from offering cellular telephone service in Tokyo and nearby urban areas. The USTR threatened to slap 100% tariffs on an array of Japanese products, including private branch exchanges and other equipment ("U.S. may tariff telecom imports from Japan," *NW*, May 29) if the restrictions were not dropped by July 10.

Under the agreement announced last week, Japan said it will let Motorola operate its cellular business in the disputed cities and the USTR said it would not follow through on the threatened tariffs.

**Satellite reservations.** Days Inns of America, Inc. last week announced a \$5.8 million contract with AT&T subsidiary Tridom Corp. to double the size of the hotel chain's satellite-based reservation network to support a total of 1,500 locations. The network enables Days Inn franchises to transmit and receive credit card and hotel reservation information using very small aperture terminals.

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A variety of forces is expected to spur rapid growth in sales of videoconferencing equipment and services in the next five years, analysts say. **Page 7**

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### Data Communications

VXM recently announced software that enables users to amalgamate the processing power of network-attached processors and achieve performance rivaling that of supercomputers. **Page 11**

### Local Networking

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Making possible a new generation of fax machines that can send a letter quality page in less than six seconds.

Dropping the cost of video conferencing from \$300 an hour to \$12.

And cutting the cost of sending bulk data at 56kbps from over a dollar a minute to about 10 to 12 cents.

These and many more applications are made possible by US Sprint's exclusive nationwide 100% digital fiber optic network, which gives FON 56 a level of reliability never before possible over voice lines.

They're all available right now to US Sprint VPN<sup>™</sup> customers, and to other business customers later this year.

To see what FON 56 can do for your company, call your Account Manager today. And talk with the best.





# CO fire, virus attack raise awareness, not preparation

Report cites need for enterprise security plans.

By Bob Brown  
Senior Writer

NEW YORK — Last year's Hinsdale, Ill., central office switch fire and the Internet virus have raised awareness of network security, but few firms have taken comprehensive measures to protect networks and computer systems, according to a new report.

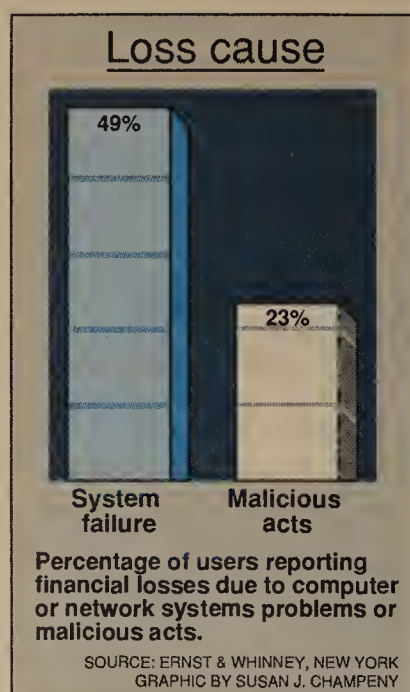
While nearly 90% of executives say security is a major concern for their companies, more than 40% of U.S. businesses may be susceptible to business-stopping information systems breakdowns, according to "The 1989 Ernst & Whinney Computer Security Survey: A Report."

Ernst & Whinney, a profes-

sional services firm that recently merged with counterpart Arthur Young, interviewed nearly 300 security professionals and middle-to-upper-level managers for the report.

The growing reach of corporate networks exaggerates security problems and raises the need for improved security procedures, said Peter Browne, director of Ernst & Whinney's northeastern security practice. Security vulnerabilities are also being spread beyond individual corporate networks to the networks of users' business partners and to the public network, he said.

The report states: "How have the nation's information systems become so vulnerable?...Partly

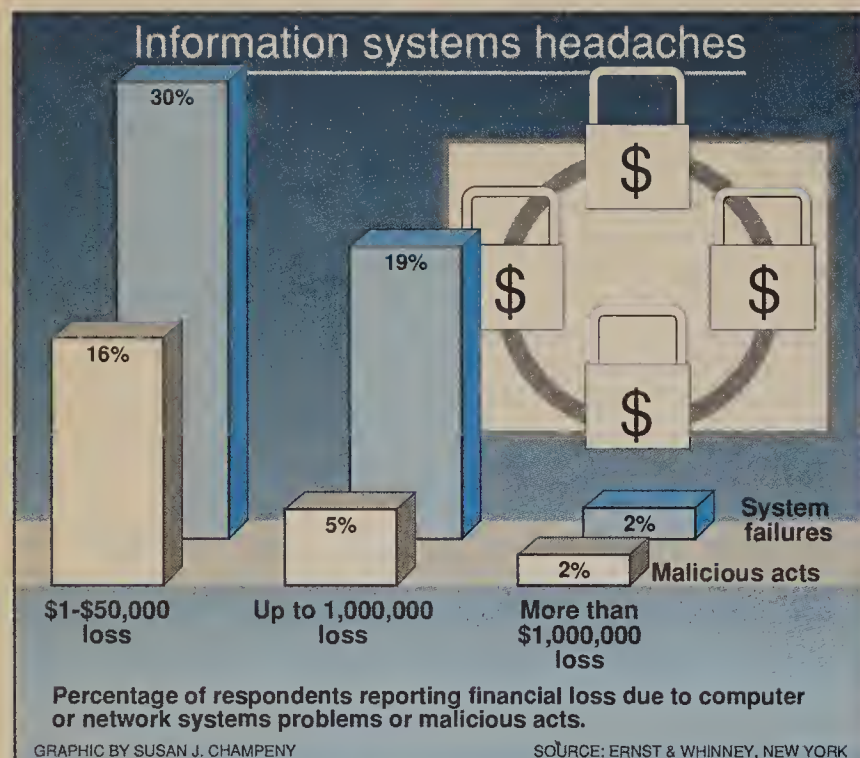


because they often do not plan broadly enough for the integrity and availability of data." The lack of a "standard, comprehensive computer security policy for the commercial sector" is also a problem, the report said.

Users need to focus more on developing corporatewide network security strategies instead of developing security plans only for specific operations, such as data processing, the report said. The government needs to help fund research in this area, the report added.

About half of the respondents reported financial losses resulting from system failures or downtime and nearly a quarter of respondents said they had suffered financial losses due to malicious acts, such as fraud and embezzlement (see graphics, this page).

Some 30% of respondents said their organizations lost up to \$50,000 over the past two years as a result of system failures or downtime. Another 19% of respondents said their organizations lost between \$50,000 and \$1,000,000. (continued on page 39)



## New England Tel first BOC to enter fractional T-1 field

By Jim Brown  
Senior Editor

BOSTON — New England Telephone & Telegraph Co. last week became the first Bell operating company to announce a fractional T-1 service for the local loop.

The fractional T-1 offering was one of four digital data service (DDS) tariffs the carrier filed with the Massachusetts Department of Public Utilities.

The Superpath Fractional T-1 Service will enable users to lease eight or 12 DS0 channels, each of which operates at 64K bit/sec, on a New England Telephone-supported T-1 line at a lower cost than a full T-1 circuit.

The service will initially be available in Massachusetts and will be rolled out across New England in the future, said Deborah Sonnenschein, director of transport services.

New York Telephone Co., the other operating company owned by regional Bell holding company Nynex Corp., also plans to file a fractional T-1 tariff in the near future, a New England Telephone spokesman said. Other RBHCs are examining whether to offer fractional T-1 services.

New England Telephone's fractional T-1 service will benefit users that cannot cost-justify a full T-1 between sites in Massachusetts but have traffic exceeding the limits of the carrier's next highest speed digital service, which operates at 56K bit/sec.

Superpath Fractional T-1 Service will also enable New England Telephone customers to reduce the cost of accessing interexchange fractional T-1 services. Currently, users must lease an entire T-1 to access interexchange carrier fractional T-1 service ("Fractional T-1 users face

local obstacle," *NW*, June 19).

Superpath Fractional T-1 Service supports point-to-point communications between customer sites within Massachusetts, an area that comprises two local access and transport areas. To support communications between the two Massachusetts LATAs, users must choose an interexchange carrier.

With Superpath Fractional T-1 Service, users access the nearest central office via a full T-1 circuit that is priced below the full T-1 rate. New England Telephone merges DS0s from different customer sites onto a New England Telephone T-1 line.

New England Telephone's other proposed services include DOV Path Service, which supports simultaneous voice and data on the same circuit. Merging data onto a voice circuit eliminates the need to purchase a dedicated facility to link a user to a leased data line.

To use the service, customers install a New England Telephone-supplied data over voice (DOV) multiplexer that supports trans-

(continued on page 38)

## Europe takes step toward competitive VAN services

By Bob Brown  
Senior Writer

BRUSSELS, Belgium — The European Commission (EC) last week announced plans to open state telecommunications monopolies to competition in some value-added network services by mid-1990.

The plans are designed to make member countries of the EC more competitive and clear the path for a single European market for communications goods and services by the end of 1992. The new EC directive will allow companies other than the state-run monopolies to offer a variety of value-added network services, including facsimile transmission, electronic mail, videotex, and computerized banking.

The EC moves are not only significant for users and vendors in Europe but for their U.S.-based counterparts as well. A more open telecommunications market in Europe will provide inter-

national network users with a greater array of service choices and net expansion options, as well as offer U.S. vendors larger market opportunities.

The EC's directive to open up some value-added service markets to competition "should encourage efficiency, innovation and lower prices," according to a prepared EC statement. Value-added services represent a fairly small but growing sector of the European telecommunications market, according to the EC.

The opening of these markets is expected to occur around April 1, 1990. But some EC members, including France, Belgium and Italy, are expected to resist the EC's telecommunications services directive. At the very least, they are expected to oppose the way the EC has gone about issuing it without seeking approval from individual countries' EC ministers. France has already led a

(continued on page 38)

## Stratus builds support for DECnet into XA2000 minis

By Jim Brown  
Senior Editor

MARLBOROUGH, Mass. — Stratus Computer, Inc. last week said it is adding support for Digital Equipment Corp. DECnet protocols to its XA2000 minicomputer, enabling users to position the device as a transaction processor in DECnet networks.

Stratus said it is licensing Sudbury, Mass.-based Technology Concepts, Inc.'s CommUnity DECnet-compatible software and will work with Incotel, Inc. of New York to port CommUnity to Stratus' VOS operating system. Stratus will call the resultant software DNS/2000.

With DNS/2000, Stratus' XA2000 line of fault-tolerant transaction processors can communicate on a peer-to-peer basis with DEC VAX minicomputers on a DECnet network. The Stratus system will also use existing Stratus software to communicate with IBM mainframes via Systems Network Architecture and IBM Personal Computers via asynchronous links.

Stratus currently provides Transmission Control Protocol/Internet Protocol software to link XA2000s to VAXes on an Ethernet network. But, said Eric Janszen, manager of third-party projects at Stratus, users are unwilling to abandon investments in DECnet-based applications by using TCP/IP software for XA2000-to-VAX communications. Users would rather support XA2000-to-VAX communications via DECnet, he said.

The agreement is aimed at positioning Stratus to compete in the manufacturing arena, Janszen said.

Stratus is positioning the XA2000 as a plantwide computer host capable, for example, of receiving production orders from corporate hosts via SNA, preparing process control programs and downloading those programs via DECnet to VAXes on the factory floor. The VAXes would control robots and programmable controllers.

"Stratus is interested in penetrating DEC accounts. And one of the things it needs to penetrate them is to communicate on DECnet," said Sandy Gant, vice-president of mid-range systems research at InfoCorp, a market research firm in Cupertino, Calif.

Users that require a Stratus system for its reliability and availability will benefit from DNS/2000, Gant said. While DEC can match the Stratus capabilities, users must pay a price, she added.

"Digital can deliver high availability, but they do it through a lot of expensive redundancy and it requires customer programming. Stratus delivers high reliability more easily and more economically," Gant said.

Stratus' XA2000 can be linked to a DECnet network via a Stratus Programmable Ethernet Adapter board. Scheduled to ship in September, DNS/2000 will range from \$17,500 to \$45,000, depending upon the Stratus XA2000 model. □



# INTEROP 89

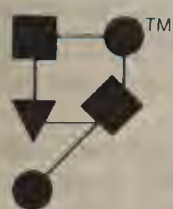
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# Bull to resell 3Com NOS, Ethernet boards in Europe

3Com also scopes out planned enhancements to Version 1.1 of 3+Open LAN Manager pack.

By Susan Breidenbach  
West Coast Bureau Chief

SANTA CLARA, Calif. — 3Com Corp. last week landed one of its largest contracts to date for its 3+Open LAN Manager when it signed Paris-based Bull S.A. to resell nearly \$40 million of the operating system software and 3Com Ethernet boards in Europe over the next three years.

In an interview with *Network World*, 3Com officials said delivery of 3+Open LAN Manager Version 1.1 is on target for September. Key upgrades to the network operating system include

tion they have been waiting for," Piffaut said. LAN Manager/X, a Unix version of LAN Manager, is being developed by Hewlett-Packard Co. in conjunction with Microsoft and 3Com.

In addition to 3+Open and two models of 3Com's EtherLink adapters, Bull S.A. will distribute 3Com's 3+Mail electronic mail package; LAN Vision net management software; 3+Open Internet software for linking multiple 3Com networks and remote personal computers; and 3+Open Name, a central naming service for large internetworks.

Company officials last week confirmed that 3Com will ship 3+Open LAN Manager Version 1.1 in September. The company also discussed new features of the network operating system.

The size of the network shell that runs in client workstations has been reduced by up to 100K bytes, thanks in part to a new Network Basic I/O System Protocol (NBP) that takes up only 20K bytes of memory. When the shell is running in one of 3Com's 3Station/2E workstations, 579K bytes of RAM are available for applications.

On a standard personal computer, 3+Open 1.0 leaves 420K bytes of memory, while Version 1.1 increases that amount to 520K to 540K bytes, depending on configuration.

"We are now 110K bytes better than Banyan VINES, and a little better than Novell," said Alan Kessler, director of marketing for 3Com's software products division. "We went from last to first place in one jump."

The new DOS workstation shell also includes support of Named Pipes, the OS/2 interprocess communications facility that workstation-based applications use to access server-based OS/2 applications, such as the SQL Server data base developed by Sybase, Inc., Microsoft Corp. and Ashton-Tate Corp.

Named Pipes for DOS has been available as a free upgrade to 3+Open users for about five months, but it will now be an integral part of the system.

The second release of 3+Open also marks the debut of 3Com's Demand Protocol Architecture (DPA), which enables users to switch between different networking protocols such as NETBIOS and Transmission Control Protocol/Internet Protocol on demand, without rebooting their workstations.

Version 1.1 includes NBP and Xerox Corp.'s Xerox Network Systems protocols, and TCP/IP and Open Systems Interconnection modules will be added in future releases, Kessler said. ■

## Token-ring users sound off to OTF

continued from page 1

dor networks. Shell Oil has more than 1,100 devices on 54 token rings interconnected by a backbone network and plans to add 800 more workstations over the next few years.

"Our objective is to have every

Bruno.

However, OTF officials made it clear that a top priority in coming months will be to attract users to its ranks. Some observers believe a strong OTF user base could eventually entice IBM to join.

IBM has turned down an invitation to join OTF because, according to a prepared statement, it believes the group's main goal

discourages users who are leery about proprietary technology from adopting token-ring nets.

Users at the OTF session were divided over what impact IBM membership would actually have on achieving greater interoperability between 802.5- and 802.2-comformant token-ring products.

Coca-Cola Foods' Currid said IBM's presence in OTF would bring stability to the token-ring market and help it grow. Ninety percent of Coca-Cola Foods' local networks are token ring.

She said IBM should join OTF in order to help the token-ring market expand and help token ring outstrip Ethernet installations. Once that war is won, she said, IBM can focus on protecting its own Token-Ring market share.

Lindsay Miller, project manager of local-area network and workstation engineering at American Airlines, said IBM's involvement would be important to him "only if IBM could be convinced to buy off on the strategy of interoperability and vendors working together."

American Airlines is currently in the process of installing over 50,000 personal computers from a variety of vendors that will be connected via token-ring networks.

Miller doubted, however, that any one user could pressure IBM to join the OTF. "To a company like IBM, an order for 50,000 PCs is just a drop in the bucket."

The only way users could be successful, he said, is through a united front.

OTF's next scheduled event is an interoperability demonstration planned for September at the upcoming NetWorld '89 show in Dallas. Though participating companies have not yet been identified, OTF's Madge said he hopes IBM will participate. ■



Shell Oil's Jim Brandenburg (left), Coca-Cola Foods' Cheryl Currid and American Airlines' Lindsay Miller cover issues with OTF official.

computer in the company attached to a token ring," Brandenburg said. "If something goes wrong, I don't want to see any finger pointing. I want the problem fixed. There's still too much finger pointing going on."

Users suggested that OTF members establish an interoperability lab to test token-ring products before they are shipped to user sites. "I'm tired of being the test bed for everything," said Cheryl Currid, director of applied information technology at Coca-Cola Foods in Houston.

Last week's OTF gathering here drew roughly 40 vendors, but only one user beyond those on the user panel, which was chaired by *Network World* Assistant Managing Editor Charles

is to "standardize implementation details for products that attach to the token ring." Such a strategy, IBM believes, would "impede innovation and severely constrain" improvements in token-ring technology.

OTF members translate that to mean IBM doesn't want to share common application program interfaces with third-party providers, which would make it easy for those third parties to develop boards that would work in IBM's Token-Ring Network. Such products would compete against IBM's own Token-Ring interfaces.

Robert Madge, president of Madge Networks, Ltd. and chairman of the OTF, said this stance makes token-ring technology appear less open than it really is and

## NEC America unveils net control system for PBXs

Boeing-developed software runs over Unix.

By Tom Smith  
New Products Editor

MELVILLE, N.Y. — NEC America, Inc. last week announced a network management system that will initially control its NEAX2400 private branch exchanges but eventually be enhanced to manage a variety of NEC equipment.

NEC America's Versatile Solution Oriented Network Integrated Network Management System (VISION NMS) software was developed by Boeing Computer Services Co. of Seattle and provided to NEC through a nonexclusive agreement.

The software runs on any Unix-based computer and enables users to perform functions such as fault, performance and

configuration management, as well as administration, service order processing, financial management and inventory management.

"Our NEAX2400 customers have been asking us for the ability to manage their PBX network on an enterprisewide basis," said Larry Kalish, director of systems integration and corporate network systems with NEC America's Computer & Communications Business Development Division.

VISION NMS has a three-tiered architecture. At the uppermost layer is the master processor, which could be a microcomputer, a workstation, a minicomputer or a mainframe, depending on the needs of the user.

The master processor controls

second level, subnet management systems developed by NEC America to manage networks of its NEAX2400 PBXs, NEDIX packet switches and NCMS/PC 386 modems.

The upper and middle levels will communicate using NEC America's DINA-XE protocol, which complies with the Open Systems Interconnection model, Kalish said.

As initially released, VISION NMS will only support the NEAX2400, with follow-up releases intended to manage subnetworks of other NEC America products.

PBX management features will include the ability to monitor major alarms, such as a power failure, and minor alarms, such as a trunk or station card failure, according to Ron Schiller, marketing manager for NEC America's Business Systems Sales Division.

NEC America is aiming for availability of VISION NMS in June 1990. ■

enhanced support of DOS workstations and a performance boost of 20% to 40%.

### Bully deal

3Com President and Chief Executive Officer William Krause said 3Com won the Bull S.A. contract in competitive bidding against Novell, Inc., Banyan Systems, Inc. and Digital Communications Associates, Inc.'s 10Net division.

Bull S.A. is a subsidiary of Groupe Bull, one of the largest computer manufacturers in the world.

Krause said the OEM agreement was particularly satisfying to 3Com because the 3+Open network operating system was a "driving factor" toward closing the deal. 3Com already has OEM agreements with most of the other major European computer manufacturers, but some companies, such as Nixdorf Computer AG and Siemens AG, buy 3Com hardware for use with their own networking software.

"We are particularly interested in 3Com's ability to deliver interoperability of 3+Open and Unix systems," said Francois Piffaut, general manager of Bull S.A.'s microcomputer division.

"3Com's strategy to ensure compatibility between 3+Open LAN Manager and LAN Manager/X will give our customers — who have Unix-based systems that run on Ethernet — the solu-



# INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS AND FINANCIALS

## Worth Noting

The market for ISDN terminals and adapters will grow from about \$12 million this year to more than \$4.5 billion by 1993, according to a new study by Able Telecommunications, Inc., a Milpitas, Calif.-based consulting and market research firm. The "ISDN Terminal Adapter & Terminal Market Report" costs \$1,950. For more information, call (408) 945-1484.

## People & Positions

**Richard Froke** last week was named director of advanced engineering at **Samsung Information Systems America** in San Jose, Calif. Froke will lead Samsung's U.S.-based technical efforts to develop innovative local network hardware.

Previously, Froke was director of engineering at **Novell, Inc.**'s San Jose facility. He was responsible for the development of Novell's file servers, workstations and local network interface cards.

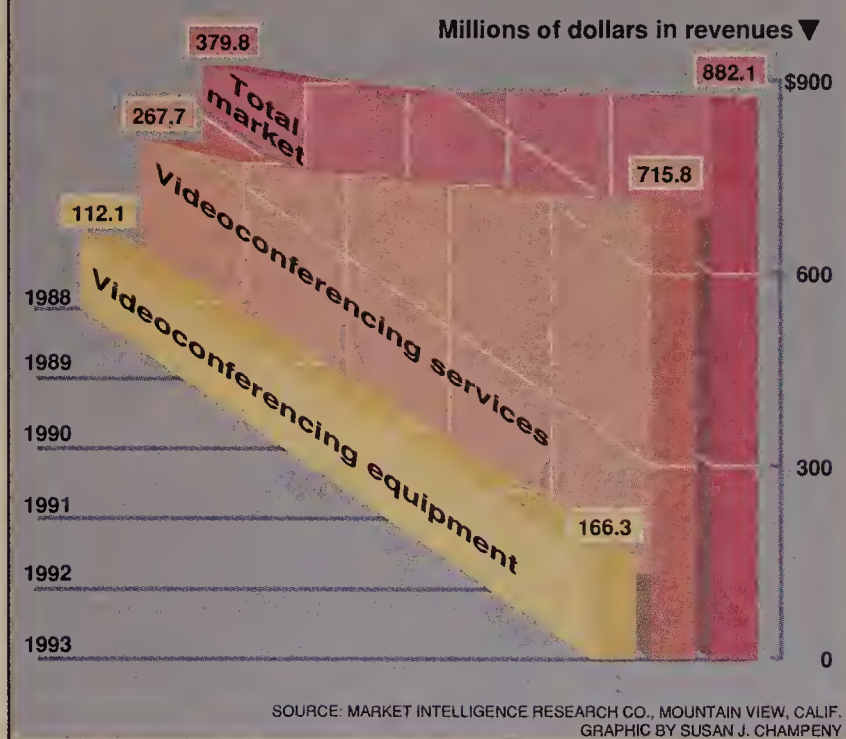
Froke said he plans to draw upon his understanding of Novell's local net technology to develop products for Samsung that can take full advantage of Novell's industry-leading NetWare software.

Boulder, Colo.-based **Netwise, Inc.** last week announced that **Mark Hatch** has been named vice-president of marketing.

Hatch will be responsible for marketing Netwise's Remote Procedure Call Tool product, which provides remote procedure call technology to network products and more than 30 hardware types.

Previously, Hatch was manager of Apollo Computer, Inc.'s Portable Software Products Group. □

## The videoconferencing market



## Videoconferencing market set to soar

New data services, falling equipment costs and other factors are expected to spur sales growth.

By Gail Runnoe  
Washington Correspondent

A variety of forces is expected to spur rapid growth in sales of videoconferencing equipment and services in the next five years, analysts say.

Declining equipment costs, new leasing options, the emergence of compatibility standards and availability of new, less costly digital transmission services, such as switched 56 and fractional T-1, are expected to bring new users and applications to the videoconferencing market.

Costly equipment — particularly coder/decoders (codecs), which translate video signals into digital signals for transmission — and the expense of dedicated services have limited videoconferencing to a small group of users, according to Steve Kropper, telecommunications analyst at International Data Corp., a market research firm in Framingham, Mass.

But advances in technology are expected to change that. A study published recently by Market Intelligence Research Co. of Mountain View, Calif., projects sales of videoconferencing equipment and services will nearly double by 1993. Market Intelligence said sales will increase 90% from a 1989 level of about \$463 million, to more than \$882 million by 1993.

George Moy, president of Moy Associates in Gaithersburg, Md., said the market for videoconferencing systems that take advantage of 56K or 64K bit/sec digital services is poised for "an explo-

sive growth period." Among the factors contributing to rapid growth, Moy cited AT&T's 60% price cut last March for its Accunet Switched Services and the availability of switched 56 services.

Another force behind market growth, said George Newman, manager of communications leasing planning services for IDC Financial Services Corp., is the growing trend toward leasing of videoconferencing systems. Only 5% of videoconferencing users lease equipment today, he said, but within three to four years, that number could increase to 25%.

Newman said leasing is an ideal way for users to test videoconferencing technologies. By avoiding any capital outlay, he said, users eliminate the risk of buying equipment that may quickly become outdated or prove incompatible with other systems.

Interoperability is becoming a key issue for users that want to conduct videoconferencing with other companies.

The Consultative Committee on International Telephony and Telegraphy is expected to issue in 1992 a new interoperability standard for codecs operating between 64K bit/sec and 2M bit/sec. Analysts say this standard should give users more confidence in making videoconferencing investments.

Sandy Kyrish, an independent telecommunications researcher, said that as costs for buying and leasing videoconferencing equip-

(continued on page 8)

## AT&T market share losses taper off in first quarter

New FCC report shows slower rate of decline.

By Bob Brown  
Senior Writer

WASHINGTON, D.C. — AT&T's share of the market for interstate switched services continued to fall in the first quarter, although at a slower rate than in the past, according to a recently released FCC report.

The Federal Communications Commission report, which tracks market share measured in switched access minutes, showed that AT&T's share of the daytime business market has fallen from 99.8% in the first quarter of 1985 to 69.1% in the first quarter of 1989 — a drop-off of 30.7%.

Despite the reported losses, the study offered encouraging news for AT&T. The carrier's first-quarter market share dropped 0.3% from 69.4% in the fourth quarter of 1988. That rate of decline, if it holds steady, would result in an annualized market share loss of 1.2% for the year. That is well below the carrier's average yearly loss of 7.7% since 1985.

AT&T's share of the overall interstate switched market has

dropped from 83% in the first quarter of 1985 to 66.8% in the first quarter of 1989 — a 16.2% drop, the report said. But AT&T lost just 0.2% of its market share since the fourth quarter of 1988, during which it had 67% of the market. At an annualized rate, that means AT&T would lose less than 1% of its market share.

While AT&T's market share has fallen, its traffic has grown, though at a slower rate than the market overall. Since mid-1984, AT&T's interstate switched traffic has grown at an annual rate of 7.7%, compared with an overall industry average of 13.4% annual growth. AT&T's competitors have increased their traffic by 33.9% annually since mid-1984.

The FCC's market share figures, which are calculated from data provided by local exchange carriers, do not include intrastate toll traffic. The figures also do not include calls made on private telecommunications networks or leased lines.

An AT&T spokesman said the latest FCC reports prove that

(continued on page 8)

## INDUSTRY BRIEFS

**Xerox Corp.** last week increased its commitment to the commercial systems integration market by agreeing to buy marketing services from a start-up firm being formed by entrepreneur Robert LaRose. The start-up plans to sell and install a variety of Xerox equipment under this agreement.

Xerox, which set up a federal systems integration division in late 1986 and a commercial systems integration division in January, said its alliance with systems integration firm **Universal Systems, Inc.** of Fairfax, Va., will help Xerox provide users with network design and management services.

Xerox said it plans to buy about \$6 million worth of marketing services from Universal Systems in its first 18 months with the prospect of another \$10 million over the following 2½ years.

LaRose envisions that, within 10 years, Universal's annual revenue will reach about \$500 million, a significant portion of which will represent the sale of Xerox equipment, software and services.

LaRose set up another systems integration firm in 1976 called Advanced Technology, Inc. — which focused on federal systems integration — and turned it into a \$160 million company in 12 years. Universal Systems is expected to have a fairly even split of commercial and federal customers.

**Hewlett-Packard Co.** last week said it would cut about 20% of the 500-person work force at the Chelmsford, Mass., headquarters of Apollo Computer, Inc., which HP acquired last month.

No job changes are planned at Apollo's plants in Exeter, N.J., and in Scotland. HP said that 150 employees at Apollo's headquarters are no longer needed, but that 50 of them will be transferred to other positions.

HP, which sells computer and measurement equipment, employs 93,000 people. □



## McDonnell Douglas puts videoconferencing to work

ST. LOUIS — Videoconferencing has become "a normal tool for doing business" at McDonnell Douglas Corp.

According to Don Augustin, director of telecommunications for the aerospace giant, videoconferencing has been used for five years and there are plans to expand its use. McDonnell Douglas' videoconferencing system is used both internally by the company's executives and its various project teams, and externally for communications between McDonnell Douglas and its suppliers and customers.

McDonnell Douglas has what Augustin calls full-function and office-level videoconferencing facilities.

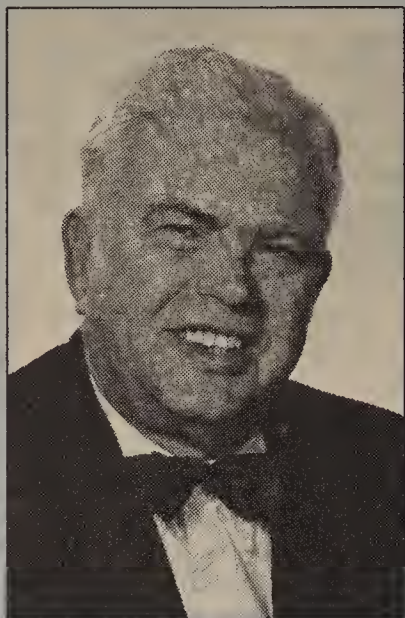
Full-function videoconferencing rooms are networked via 784K bit/sec satellite links, support full-motion video and can broadcast high-resolution graphics. They offer space for large audiences and provide three-way interactive communications. McDonnell Douglas has 10 full-function rooms served by eight earth stations. Compression Labs, Inc. of San Jose, Calif., provides the videoconferencing equipment, including the coder/decoders.

McDonnell Douglas' office-level videoconference rooms are networked via 56K bit/sec transmission lines supported by the company's own network. These videoconferencing facilities support point-to-point communications only and have limited graphics resolution and video motion quality. The firm has 12 office-level videoconfer-

encing rooms and plans to double this figure by year end. Picture-Tel Corp. of Peabody, Mass., provides the low-speed videoconferencing equipment.

McDonnell Douglas' full-function rooms are each used an average of 80 hours per month, and some rooms are used twice as often. The slower speed videoconferencing rooms moved from the pilot stage at the start of this year and are just starting to be used regularly, he said.

The company links the two



McDonnell Douglas' Augustin

types of videoconferencing facilities via gateways that support communications between locations as far apart as Washington, D.C. and southern California ("ICA honors three users for innovative net applications," *NW*, May 15).

McDonnell Douglas can even broadcast to all its videoconferencing room sites, although in-

teractive communications is limited during such broadcasts.

Augustin had no estimate for how much McDonnell Douglas has spent on videoconferencing or has saved by using it. While he acknowledged that videoconferencing helps cut travel costs at McDonnell Douglas, the major benefit of the technology is in "increasing the value of meetings," Augustin said. Problems can be solved more quickly.

"With videoconferencing, you tend to be able to get all the right people together for a meeting," Augustin said. "When you have to travel, you often are forced to select just a few people and then you have to worry about everyone's calendars."

Videoconferencing is a popular way of doing business between the major aerospace firms, which often work together on projects, Augustin said. The Aerospace Industry Association, an industry trade group that has also been a leader on the X.400 front, has a videoconferencing panel on its telecommunications subcommittee that encourages the development of videoconferencing standards.

Among the videoconferencing advances that McDonnell Douglas is working on with its suppliers are low-cost, high-resolution graphics capabilities and low-speed, three-way videoconferencing. Augustin expects vendors will come through with such offerings by year end.

However, some videoconferencing shortcomings will probably never be rectified, Augustin said. Videoconferencing cannot replace the face-to-face contact and body language that often plays a big role when one is trying to make a sale, for example, he said.

— Bob Brown

## UB plan halts users' work

continued from page 1

if the product actually offers a cost-effective alternative to local nets based on shielded wire.

But the potential savings are great enough to give users pause. Unshielded wire costs 4 to 6 cents per foot. The shielded wire IBM requires for its 16M bit/sec Token-Ring Network costs 84 to 86 cents a foot.

Wiring projects have come "screaming to a halt," said John Powers, a principal at Powers Tritsch & Associates, Inc., a consulting firm in Wellesley Hills, Mass.

### Cut in half

"If something is looming out there that could cut costs in half, you have to look at it," Powers said. "Wiring costs represent 40% to 60% of many PBX and local network installations. A bad call here could be career-threatening. Millions of dollars are sitting in limbo."

Jerry Eisen, president of Office Sciences International, Inc., an Iselin, N.J.-based network consulting firm, said the Ungermann-Bass announcement has also frozen some of his clients' plans and put him "between a rock and a hard place when it comes to advising clients on wiring."

Eisen said one of his clients, a major medical products manufacturer, recently installed shielded wiring in one building and planned to install shielded wiring and fiber in another until the Ungermann-Bass announcement.

The client, which is a year to 18 months away from installing the cabling in the second building, has now decided to take a look at unshielded twisted pair, he said.

Bill Spina, a managing partner with Integrated Transport Systems, a Burlington, Mass.-based consulting firm that specializes in wiring, said the Ungermann-Bass scheme could be the answer for users who want to run 16M bit/sec token-ring networks to the desktop.

Today, 99% of the applications for 16M bit/sec are in backbone applications, Spina said. "But it looks like Ungermann-Bass could have the solutions for

16M bit/sec to the desktop when the need arises."

Pat O'Hare, manager of telecommunications at Sun Financial Group in Wellesley Hills, said her company is planning a major re-wiring project and will undoubtedly give the Ungermann-Bass product a look.

"When I first heard our people talking about wanting to run 16M bit/sec token-ring to the workstation, I assumed we'd be using Type 1 IBM [shielded] cabling," O'Hare said. "I'm not so sure now."

Lindsay Miller, project manager of local network and workstation engineering at American Airlines, Inc. in Dallas, concurred: "If UB says it can run 16M bit/sec token-ring over telephone wiring, some companies are going to drop everything and start figuring out the cost factors."

### Unanswered questions

Although Ungermann-Bass is still mum on pricing, Roger Bertman, Ungermann-Bass' group director of product marketing, said the difference in cost between shielded and unshielded wiring would "in virtually all cases be large enough to more than offset equipment costs" associated with Ungermann-Bass' offering. Some users and consultants are skeptical though.

"The wiring might come in at a good price, but the cost of the electronics is still a big question," said John Kelley, local network systems analyst for Boeing Computer Services Co., a Seattle-based division of The Boeing Co. "The product is not expected out for well over a year, and large users can't always wait to make a decision."

Boeing Computer Services recommends a fairly standard Type 1 cable for Boeing's Commercial Aircraft division but uses twisted-pair wiring in some older buildings, Kelley said.

According to Powers, as a rule of thumb, the Ungermann-Bass system will be easier to cost-justify as the cable run gets longer. But users also have to take into account the fact that the extra electronic components needed with Ungermann-Bass' system add possible points of failure that users of shielded wire do not have to contend with, he said. ▢

## Videoconference market to soar

continued from page 7

ment decline, the number of people in an organization who can authorize investment in the technology increases.

She said that with a growing number of companies experimenting with videoconferencing in some form, the industry is nearing its critical mass.

"There are some big enough companies using it now that other firms will feel more comfortable about videoconferencing," she said. Also, as more companies use the technology, their competitors are pressured into employing it.

### Still a while away

Joe Garber, principal and co-founder of A.T. Kearney Technology, Inc. in Redwood City, Calif., however, said he believes the growth some people predict for the videoconferencing market is still years down the road. Today, he said, "the market for video-

conferencing looks like the market for used Yugos."

Despite the price incentives, growth is hampered by poor marketing on the part of vendors, he said. Garber faulted vendors for focusing on selling videoconferencing technology, not its practical business applications.

Garber said the real growth in the videoconferencing market will come at the personal computer level. "The vast amount of conferences are ad hoc," he said, and consist of two or three people getting together in somebody's office."

While boardroom videoconferencing systems cut down on periodic air travel for a handful of upper level executives, desktop videoconferencing is a tool that could save time daily for lower level employees who confer with one another on a more frequent, informal basis, he said.

### The productivity leap

A number of companies that have already begun using personal computer-based videoconfer-

encing tools say travel savings take a backseat to the productivity gains they've realized through using this new communications option.

Shelly Borak, associate director of telecommunications at Colgate-Palmolive Co. in New York, reported that since his company began using personal computer-based videoconferencing systems early this year, "our people communication is much stronger than it used to be." More people are having more meetings faster, he said, resulting in faster decision making.

Colgate-Palmolive uses four Concept Communications, Inc. Image 30 personal computer-based systems to link its New York headquarters to a research and development center in Piscataway, N.J. While the company dedicated a portion of an existing T-1 line to support the N.Y.-N.J. link, Borak said Colgate-Palmolive is testing switched 56 service to support videoconferencing between regional sales offices and manufacturing plants. ▢

## AT&T market losses taper off

continued from page 7

AT&T continues to face tremendous competition from MCI Communications Corp., US Sprint Communications Co. and others. He attributed the slowdown in market share erosion to aggressive marketing strategies implemented by AT&T since Robert Allen became chairman last year.

Because the FCC figures exclude some components of the long-distance market, its market share figures can be somewhat misleading, said Page Montgom-

ery, a vice-president at Economics and Technology, Inc., a Boston-based consulting firm.

"AT&T market share is going down a lot less slowly than even these figures or AT&T would have you believe," Montgomery said.

Montgomery pointed to AT&T's Pro WATS promotion as an effective program for winning back business customers. Under the Pro WATS program, AT&T agreed to pay the sign-up fee and any switch-over costs for users who moved to AT&T from a rival's WATS service ("AT&T Pro WATS promo gets off to a running start," *NW*, June 12). ▢



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# TELECOMMUNICATIONS

CARRIER SERVICES, CENTREX, CPE, WIRING SYSTEMS AND BYPASS

## Worth Noting

**B**y 1996, more than \$8.5 billion will have been invested in undersea fiber-optic communications systems, according to Kessler Marketing Intelligence, a Newport, R.I.-based research firm. The systems announced as of 1989 represent \$6.15 billion.

## Carrier Watch

Telemarketing firm Nice Corp. recently began commercial use of AT&T's Integrated Services Digital Network Primary Rate Interface service after waiting almost a year for the service.

Nice said the service's automatic number identification (ANI) feature, which provides the company with the telephone numbers of calling parties, will help enhance customer service, cut call processing time and identify troublesome crank callers.

AT&T is providing the service from a 4ESS central office switch in Salt Lake City that was upgraded in accordance with the carrier's 1989 ISDN deployment schedule. Nice supports the Primary Rate Interface link with a Northern Telecom, Inc. Meridian SL-1 private branch exchange.

"ANI can help us with traditional things like performing data base lookups, which will enable our agents to check the caller's last order and track orders in progress," said Richard Clements, telecommunications manager and engineer for Nice.

By speeding data base lookups on incoming calls, ANI will help Nice's 2,500 telephone agents shave six to 10 seconds off the current 90 seconds required to process each call, Clements said. The company's agents place and receive 20,000 calls an hour.

Although ISDN will boost agent efficiency, Clements has no plans to thin the ranks of  
(continued on page 10)

## Vendors worldwide find favor with ISDN ventures

ISDN lines expected to multiply exponentially.

By Barton Crockett  
Senior Editor

TOKYO — Nippon Telephone and Telegraph, Ltd. (NTT) last week began offering the first ISDN Primary Rate Interface services ever offered in Japan.

The Japanese carrier is just one of a growing battalion of suppliers around the world looking to Integrated Services Digital Networks as a profitable new source of revenue.

Based on information compiled from various research firms and carriers, about 8,000 Basic Rate and Primary Rate Interface ISDN lines are in service globally, the vast majority in the U.S. But by the mid-1990s, the number of ISDN lines in service is expected to swell to four million (see graphic, page 10).

In Japan, NTT currently supports about 1,300 Basic Rate Interface lines and has 10 users signed up for 22 Primary Rate Interface lines. A total of 100 Primary Rate Interface subscribers are expected by next March, according to company officials.

While use of ISDN is increasing, users, vendors and analysts disagree over what is driving the

acceptance. Most observers say ISDN is being spurred by vendors who see the technology as a potential cash cow, rather than by actual user demand.

Nearly all parties agree, however, that ISDN demand will snowball over time as the technology becomes more widely available and users think up more ways to capitalize on it.

"Certainly, we believe it's the ultimate direction for communications," said Allan Conner, president of DunsNet, which provides communications services to New York-based The Dun & Bradstreet Corp.

Conner estimated that in five to seven years, most of DunsNet's communications traffic could be carried by ISDN.

### Skeptical in Europe

Writing about Western Europe, the London-based research firm Logica PLC concluded in its recent "Telematica: 88" report that deployment of ISDN "has been driven by the PTTs and suppliers, rather than by the users."

According to the report, this is because user understanding of  
(continued on page 10)



US Sprint and GSA employees in US Sprint's network control center.

## Carriers christen FTS 2000 facilities

Service centers will enable AT&T, US Sprint to manage their portions of the FTS 2000 network.

By Anita Taff  
Washington Bureau Chief

WASHINGTON, D.C. — AT&T and US Sprint Communications Co. recently inaugurated their respective network management facilities for the Federal Telecommunications System 2000 network, marking a key milestone in the preparation to bring the network on-line later this year.

The new service oversight centers were specially built to manage AT&T's and US Sprint's portions of the FTS 2000 network, which will cost the government \$25 billion over 10 years.

The centers, located near existing carrier facilities in two Virginia suburbs of Washington, D.C., will house carrier and government personnel who will provide network billing, traffic monitoring and order entry operations.

With the two oversight centers operational, General Services Administration employees can begin testing carriers' systems and readying users for an Oct. 6 cutover date, according to Jim Speiran, vice-president of communications at Centel Federal Services, Inc. Centel won the Technical Assistance and Management Services contract to help the GSA oversee implementation of FTS 2000.

The initial cutover will involve 33 agency offices in 20 states and about 200,000 users, Speiran said. The highest volume sites — many of which will be served by both AT&T and US Sprint — will be cut over first.

The second group of sites will be cut over the first week of November, a third group will come on-line the last week of November, and the remaining users will

be brought onto the network in two-week intervals until the network is completed in May or June of 1990, Speiran said.

During the initial cutover, the network will support switched voice and low-speed data. Other services, such as high-speed data transmission and video, will be provided once all users have voice service.

Some agencies may be able to get advanced data or video services sooner than 1990 if they have a particularly pressing need, Speiran said. "AT&T and US Sprint can provide the services



US Sprint's oversight center

today, so it's not a case of capability; it's a case of timing and not letting the other services impact the viability of doing voice," he said.

The GSA, which oversees FTS 2000, will have employees permanently assigned to the centers to monitor all aspects of network operations and to ensure compliance with contract requirements.

US Sprint and AT&T have identical network management centers with computerized maps depicting the network and providing information on routing patterns and network alarms.

GSA personnel will have access to all information provided to the carriers by the computerized network management systems.  
(continued on page 10)

## WASHINGTON UPDATE

BY ANITA TAFF

**A shining example.** AT&T Chairman Robert Allen gave high praise to Andrew Barrett, a recent nominee for the post of Federal Communications Commissioner, during a speech last week at a meeting of the Mid-America Regulatory Commission.

Allen described Barrett, who serves on the Illinois Commerce Commission, as a shining example of the type of progressive regulator this country needs to keep pace with foreign competitors. "As regulators, you no longer operate in a hermetically sealed world," Allen told the group. Because industries everywhere are using communications as a strategic tool, regulators must be careful not to hamper carriers' ability to introduce new services and restructure prices to meet users' needs, he said.

**The last word on Megacom.** AT&T was awaiting word from the Federal Communications Commission last week on whether it can proceed with a promotion for new customers of Megacom and Megacom 800 services. The offer applies to users located in four area codes.

AT&T said it will waive \$3,000 in monthly usage charges for the first month of service as well as the service installation charge for both Megacom and Megacom 800. The promotion is limited to customers in the following four area codes: 612, which includes Minneapolis; 615, which includes Nashville; 801, which covers all of Utah; and 804, which includes Richmond, Va.

To be eligible, customers must order new service by Sept. 28, agree to subscribe for at least six months and spend at least \$5,000 per number for Megacom users or per routing arrangement for Megacom 800 users. □



# Hotel jettisons ISDN-based room reservation kiosk

Harrah's airport kiosk failed to lure customers.

By Bob Wallace  
Senior Editor

RENO, Nev. — Harrah's Reno hotel, the hospitality industry's first Integrated Services Digital Network user, said it will pull the plug on the reservation kiosk it installed in the local airport and supported using ISDN.

A Nevada Bell technician who worked with the user and AT&T on the project said the reservation station only attracted 60 to 80 customers a week. But the technician blamed its limited ef-

tors while using the full-motion videoconferencing link to converse with reservation agents for the 565-room hotel and casino complex. The Guest Service Center is supported by a 45M bit/sec fiber link that carries video signals and three ISDN Basic Rate Interface lines.

Harrah's had high hopes for the Guest Service Center. Rather than waiting in long lines at the hotel front desk, travelers would be able to check in quickly at the airport kiosk, hotel executives had reasoned. They hoped the kiosk would lure more customers to its facilities and gambling tables ("ISDN service lets travelers book rooms from airport," *NW*, Feb 27).

To use the service, travelers choose from a menu on a touch-screen monitor that lets them book rooms or view information about restaurants and entertainers appearing at the hotel.

If a traveler chooses to book a room, a full-motion video image of the reservation agent appears on the larger video screen.

But the appearance of the reservation agent's "talking head" startled people. "It was quite frightening and scared people away," said R.F. Chandler, Nevada Bell's open net architecture marketing manager. The hotel later decided to keep the reservation agent's image on the screen even when it was not in use.

"We outlined a wide range of [ISDN] application opportunities

with Nevada Bell — the first of which was the Guest Service Center," said Robert Miller, Harrah's head of marketing and sales. "Conceptually, it made sense, but in the final analysis, it didn't provide a meaningful benefit to people arriving at the airport."

Harrah's Reno even tried hiring well-known television comedian Rich Little to stand next to the kiosk in an attempt to draw more travelers to the service center. But that did not substantially increase use of the system, Chandler said. "Leasing the [AT&T Network Systems Group] equipment, the Nevada Bell T-3 and the rent at the airport costs them about \$5,000 a month. It's at the break-even point now," he said.

The Bell operating company wants to continue the four-month

The appearance of the reservation agent's "talking head" startled people.

ISDN trial, which is due to end today, but the hotel is not interested. "We will probably not [extend] the trial," Miller said.

Miller said the ISDN kiosk will be brought into the hotel and used for other purposes, but he would not discuss them. The hotel's interest in ISDN has not been changed by its experience with the ISDN kiosk. "We are interested in finding out how we can use ISDN technology to further our business," Miller said. □

Harrah's hoped the kiosk would lure more customers to its facilities and gambling tables.

fectiveness on lack of user friendliness, not problems with ISDN. The hotel had hoped the kiosk would pull in 50 customers a day.

Harrah's Guest Service Center, installed in February, allows travelers to book rooms from a kiosk at the Reno Cannon International Airport. The kiosk includes a full-motion video screen and three touch-screen computer monitors.

Travelers can view available rooms on the touch-screen moni-

## Carriers christen FTS facilities

continued from page 9

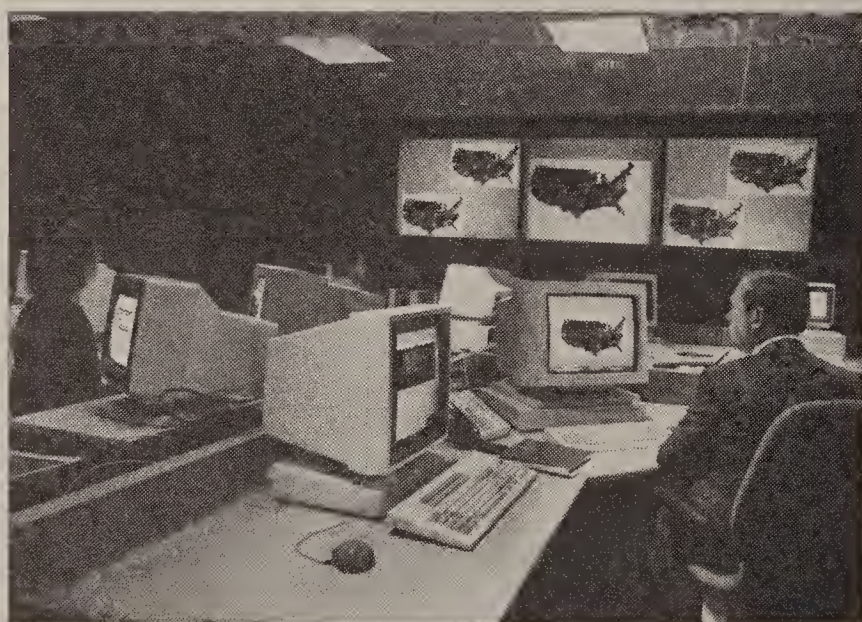
tems but will not be able to respond to alarms. Instead, GSA employees will monitor how well US Sprint and AT&T respond to problems.

Despite numerous delays and political squabbling during the two-year bidding process that concluded with the award of FTS 2000 to AT&T and US Sprint, implementation of the network is moving smoothly, Speiran said.

Beyond training GSA and carrier employees for the centers, the major remaining hurdles the carriers face is testing billing and network monitoring systems and finalizing network data base and switch software updates, Speiran said.

Since US Sprint is dedicating a portion of its existing network to providing FTS 2000 services, all circuits and switches are in place today. Additional facilities AT&T has to install for FTS 2000 will be in place and tested by the end of July.

Once the FTS 2000 network is in place, government users will



AT&T's recently completed network control center.

realize substantial cost savings. The GSA originally estimated it would save \$100 million annually by upgrading the FTS network, but Speiran said he thinks that figure is low.

According to GSA figures, the government was paying just over 30 cents per minute for switched voice calls. Estimates on the rates AT&T will charge for FTS 2000 range from 5 to 10 cents per minute, and US Sprint rates are reportedly 16 to 17 cents per min-

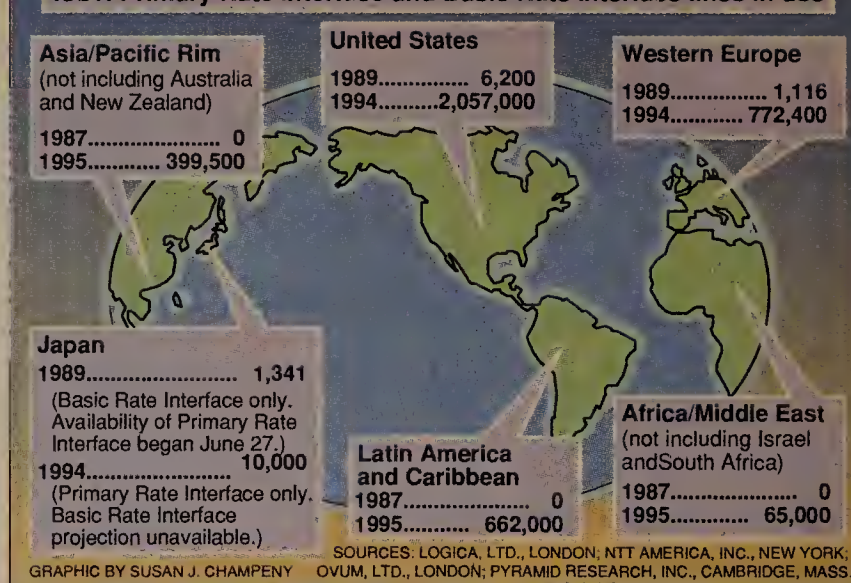
ute. In addition to pricing, users will find increased quality of service.

"I think there will be substantial growth [in network traffic]; there's a lot of pent-up demand today that's not being met," Speiran said.

"I think there have been problems in certain areas of the country with FTS over the past. People find alternatives, and when they get alternatives, they don't come back," he said. □

## ISDN across the globe

ISDN Primary Rate Interface and Basic Rate Interface lines in use



## Vendors find favor in ISDN

continued from page 9

ISDN in Europe "is low, and skepticism high." The report said carriers are excited by ISDN revenue potential and manufacturers believe ISDN can increase sales by increasing equipment demand as users replace non-ISDN gear.

This isn't necessarily an indictment of ISDN, said Anette Schier, a communications consultant with Logica. Rather, users simply need more time to think up ISDN applications.

NTT admits it is pushing ISDN before user demand has materialized. Keiji Tacatikawa, president and chief executive officer of NTT America, Inc., the New York-based subsidiary of the Japanese carrier, said NTT is installing ISDN in its network as part of a larger effort to modernize its facilities.

"ISDN is going to be the provider of the information economy of the 21st century," Tacatikawa said. "We need to get ready for that economy now by upgrading our network."

Currently, about three-quarters of NTT's switches are electromechanical crossbar devices, Tacatikawa said. The carrier wants to upgrade these to digital switches with ISDN capabilities.

### Thinking ahead

Although they may not be driving the market, users say they are looking to ISDN to support new applications.

Bill Synott, manager of telecommunications planning for the National Association of Securities Dealers (NASD) in Washington,

D.C., said ISDN could be a big money saver for his association. ISDN Basic Rate Interface would enable NASD to integrate voice and data on lines running between traders' workstations and the association's data center.

Most NASD trades are currently executed by telephone, while price quote and other data is carried separately on dedicated 9.6K bit/sec lines to traders' terminals. Integrating these on a single ISDN line would provide faster data rates and lower the cost of running NASD's network, Synott said.

Edward Hodgson, director of computers and communications at the Morristown, N.J.-based Westinghouse Elevator Co. subsidiary of the Schindler Corp., said his company is considering using ISDN to help support elevator repairs.

Hodgson said the company is testing an application where still-life images of damaged elevator parts could be sent from customer sites to Westinghouse Elevator headquarters over the data channel on a Basic Rate Interface ISDN line.

The on-site repairman could use the image to consult with trained engineers at Westinghouse Elevator's headquarters. Voice traffic could be carried on the voice channel of the same ISDN link.

Hodgson said this application would increase the effectiveness of field repairmen by giving them access to experts at the company's headquarters. □

## Carrier Watch

continued from page 9

the firm's telemarketing agents.

Besides saving precious time, ISDN has also provided some side benefits. For example, Clements said, "One of our customers dropped her phone and accidentally hung up halfway through an order. Since [ANI] had given us her telephone number, we called her right back and finished the order."

ISDN's ANI feature will also help Nice battle the scourge of the

telemarketing industry — crank callers. "We'll be able to trace them, but we're not sure what action we'll take beyond that," Clements said. Crank calls can make up almost 20% of the calls a telemarketer handles each day.

Clements said he thinks the entire telemarketing industry will adopt ISDN. "The large, high-quality telemarketing companies in the U.S. will all move to ISDN service in order to keep up with the competition. Customers will go where they can get the best service," he said. □



# DATA COMMUNICATIONS

PRODUCTS, SERVICES, ARCHITECTURES, STANDARDS AND NETWORK MANAGEMENT

## Worth Noting

**“Disaster recovery is a real-world insurance policy that works. What’s it going to cost if you don’t have it?”**

**Michael Welsh**  
Digital Transport, Inc.  
Telecommunications consultancy  
New York

## Data Packets

ITT Communications Services Group last week became the second long-haul carrier, after AT&T, to offer a 19.2K bit/sec digital data service.

The service, which initially has to be accessed using T-1 lines but will later support 56K bit/sec access, is offered in 23 cities.

ITT is offering a one-year 10% discount on the tariffed service rate and will waive the service installation fee for subscribers who sign up for the service before July 31.

The service will be available in Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, Jacksonville, Fla., Los Angeles, Miami, New York, Newark, N.J., Orlando, Fla., Philadelphia, Phoenix, Pittsburgh, Portland, Ore., San Diego, San Francisco, Seattle, St. Louis and Washington, D.C.

The Internet Engineering Task Force (IETF) is asking users and vendors to submit lists of products that can be used to debug and maintain the Internet network for a catalog it intends to publish. IETF is compiling a list of tools for managing Transmission Control Protocol/Internet Protocol-based Internet nets.

Entries can describe public domain, commercial and copyrighted tools. Submissions are due by November, and the catalog will be published in early 1990. The IETF will periodically update the catalog.

For information, contact Robert Stine, Sparta, Inc. Suite 1070, 7926 Jones Branch Drive, McLean, Va. 22102; or call (703) 448-0210. **Z**

## Freight container tracking standard adopted by ISO

System based on Amtech monitoring equipment.

By Paul Desmond  
Senior Writer

LONDON — The International Standards Organization (ISO) recently adopted a draft standard for an automatic equipment identification (AEI) system used by shipping firms to monitor the movement of freight containers.

AEI is intended to let companies track freight containers more accurately and at a lower cost than paper-intensive methods. Shippers will be able to track containers as they move from one company to another — from a maritime shipper to a railroad — as long as each company uses AEI-compliant equipment.

ISO based the standard on equipment from Amtech Corp. of Dallas. That system uses radio frequency transceivers to poll transponder tags attached to freight containers. The transceivers extract data identifying the container, then forward the data to a local node of a shipment tracking network.

Transportation companies said the technology eliminates the manual process of documenting container movements on pa-

per and automates the tracking process. That in turn helps companies better service customers, some of which are offered dial-in access to the shipping network.

ISO’s Technical Committee 104 (TC 104) recommended the Amtech system be adopted as an international AEI standard and specified where transponder tags should be placed on freight cars, what data the tags should contain and in what order that data should appear, according to Paul Kromberg, a senior assistant manager with the Association of American Railroads (AAR).

Kromberg is a member of the U.S. delegation representing ANSI at ISO meetings here June 21 to 23. ANSI is the U.S. arm of the ISO.

The movement to adopt the Amtech system was spearheaded by American Presidents Companies, Ltd., an Oakland, Calif.-based transportation company with maritime, rail and truck operations.

American Presidents has a minority stake in Amtech and is beginning to test its AEI system on  
(continued on page 12)

## X/Open invites user ideas about open computing

MONTREAL — More than 100 users and vendors met here recently on behalf of X/Open Co., Ltd. to revise the definition of the open computing environment specification the group is trying to establish as a standard.

X/Open invited roughly 45 major users to the meeting, seeking for the first time to address users’ concerns and integrate their recommendations into the specification. X/Open may eventually open its membership ranks to users, offering them the same level of development rights currently held by vendors.

X/Open is a coalition of international computer suppliers who banded together almost five years ago to form a vendor-independent Common Applications Environment (CAE) by adopting either de facto or established standards in networking, software development, data base management and other areas.

Vendors who build products based on CAE can be assured their hardware or software is capable of communicating with other CAE-compliant products.

Until now, users could only in-

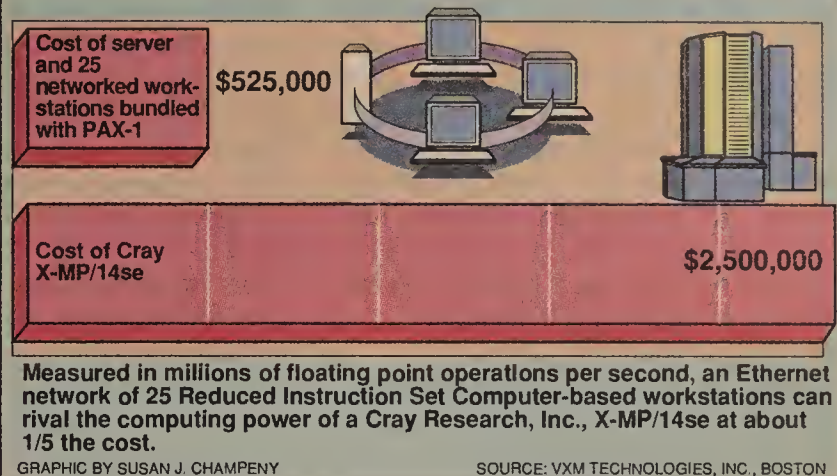


X/Open’s Steve Lowen

fluence the development of CAE by mandating that vendors conform to the definition. But now X/Open appears to be soliciting user input to help mold future versions of CAE.

“Just being heard, rather than having to cope with the end result after it’s delivered is a big plus,” said Chicke Wright, vice-president of technical operations for CAPTURE, at American Airlines, Inc. “X/Open demonstrated that  
(continued on page 12)

## The network is the Cray



## VXM packs power of Cray in net software

Different pieces of a task are distributed over a network to deliver more processing power.

By Jim Brown  
Senior Editor

BOSTON — VXM Technologies, Inc. recently announced software that enables users to amalgamate the processing power of network-attached processors and achieve performance rivaling that of supercomputers.

The PAX-1 software lets users build applications that can be distributed among systems supported by a Transmission Control Protocol/Internet Protocol-based local network and computer in parallel.

The program includes server and client components. The server software runs on Unix-based file servers such as MIPS Computer Systems, Inc.’s M/120. The client software runs on personal computers, workstations and minicomputers running MS-DOS, Unix, and Digital Equipment Corp.’s VMS and Ultrix operating systems. Client software supporting IBM MVS- and VM-based mainframes as well as Cray Research, Inc. Unicos-based computers will be added to PAX-1 in the future.

PAX-1 builds on VXM’s existing software technology, which enables developers to build applications capable of accessing disparate systems within a network and adds supports for what VXM and others are calling network supercomputing. Network supercomputing differs from Sun Microsystems, Inc.’s Open Network Computing (ONC) and Hewlett-Packard Co.’s Apollo Division’s Network Computing System (NCS) efforts in that ONC and NCS are designed to allow applications to parcel out certain tasks to network resources.

For example, an application running on a workstation can give a computationally intensive task to a supercomputer, but must wait for a response before continuing to process the appli-

cation. With PAX-1, “You take a single task and allow every node on the network to simultaneously attack a piece of it,” said Franco Vitaliano, president of VXM. When the task is finished, the answer is stored on the server running PAX-1.

In a sample configuration, a \$525,000 TCP/IP-based Ethernet with a server running PAX-1 software and 25 Unix-based workstations running PAX-1 cli-

**“You take a task and allow every node on the net to simultaneously attack a piece of it.”**

▲▲▲

ent software can process 52.5 million floating point operations per second (MFLOPS), Vitaliano said. A Cray low-end X-MP/14se supercomputer supporting 53 MFLOPS sells for \$2.5 million.

The PAX-1 server software consists of three modules.

The first module is the Parallel Network Processor (PNP) which supports the Yale University-developed Linda software system used to develop applications for parallel processing computers.

PNP enables the PAX-1 server to download data to a network device and issue commands instructing Linda-compatible applications to begin processing.

The Automated System Administrator (ASA) module is used to build scripts that automatically issue commands to start, stop and manage applications on network devices. ASA is based on VXM’s core software product called  
(continued on page 12)



## Freight standard adopted by ISO

continued from page 11

11,000 containers and 9,000 other pieces of equipment ranging from truck chassis to rail cars, according to a company spokesman ("Shipper's tracking system to yield edge," *NW*, Nov. 14, 1988).

If ISO adopts Amtech's system as a final standard, the company would be required to license the technology, on reasonable terms, to other vendors, Kromberg said.

Other vendors would also be free to develop compatible systems without a license from Amtech, said Richard Andino, director of corporate development at American Presidents.

The AAR and the American Trucking Association are both looking to adopt AEI

standards that go beyond just the freight container standard covered by TC 104. The AAR, for example, wants to define how AEI can be used to identify locomotives and rail cars. If the AAR were to adopt a competing product for its standard, it could force users that also need to comply with the TC 104 standard to buy two types of transceivers or transponders.

Three vendors are slated to present their wares to the AAR this week as possible rail industry standards, Kromberg said. They are Amtech, General Railway Signal Co. of Rochester, N.Y. and Vapor Corp. of Niles, Ill.

Before being adopted as an ISO standard, the TC 104 recommendation has to be voted on by all ISO members — a process that can take anywhere from six months to two years, Kromberg said. **■**

## VXM packs power of Cray in net software

continued from page 11

VXM, which enables a server-based application to control client applications.

By automating when tasks start and stop, ASA lets users take advantage of unused computing power during off-hours. During the day, the general-purpose systems can be used for standard tasks, Vitaliano said. But at night, users can harness the otherwise dormant CPU cycles to process computationally intensive tasks.

ASA scripts can be built using a menu-driven application running on the PAX-1 server or a VXM-developed application for Apple Computer, Inc. Macintoshes called ActionView.

ActionView is an Apple Hypercard ap-

plication that enables users to select icons that represent which network devices will be used to process a task and when that task is to start and stop. Once completed, users upload the ASA script from the Macintosh to the server running PAX-1 software.

The last module, Parallel Communications Interface (PCI), is based on VXM's existing TIM software. The module contains a series of routines that ease the task of creating application-to-application links across a network using TCP/IP.

The PCI module also supports Sun's External Data Representation standard, which converts the data format of one machine to that used by another. This enables the PAX-1 server to transmit data in the format needed by the target device.

PCI currently only supports TCP/IP-based networks. Future PCI versions will support X.25, Open Systems Interconnection, Digital Equipment Corp.'s DECnet, IBM's Systems Network Architecture LU 6.2, Novell, Inc.'s NetWare and Microsoft Corp.'s LAN Manager networks, according to Vitaliano.

PAX-1 client applications include ASA software that interprets ASA server commands and passes them to the application running on the network device. Client applications have to be modified to support both PNP and PCI routines.

PNP will go into beta test in August and is scheduled to ship in October. ASA, PCI and ActionView are available now.

PAX-1 server software supporting a network of 25 nodes costs \$25,000. Software supporting creation of PAX-1 client applications is \$595 for MS-DOS-based systems, \$695 for Macintoshes and \$2,995 for Unix-based workstations. PAX-1 client software for DEC VAXes ranges from \$3,950 to \$19,900. The Macintosh client software includes ActionView. **■**

## X/Open invites ideas about computing

continued from page 11

its members are willing to listen to what users have to say."

Tom Hauge, a systems engineer with The Boeing Co.'s Boeing Computer Services division in Seattle, said any process that lets users influence development of products is a useful process.

"I'm relatively optimistic that X/Open and its members understand the issues and are committed to addressing them for users' sake," Hauge said. But, he added, "How well X/Open can integrate user concerns and suggestions into vendors' strategies remains to be seen."

Steve Lowen, vice-president of marketing for X/Open said the main objective of the Montreal meeting was to gain an understanding of users' requirements for open systems.

"As an organization, we realize that CAE must recognize what the global requirements look like to users," Lowen said.

X/Open is developing a program that would extend membership to users, giving them equal CAE development rights as any of the vendors in the organization. Lowen would not say when X/Open plans to extend membership to users, but did say the program would be unveiled by year end.

"They've [X/Open] realized you can't develop standards in a vacuum anymore than you can write code or design products in a vacuum," said American Airline's Wright. "Ultimately, it means the user needs to be the architect of the system." **■**

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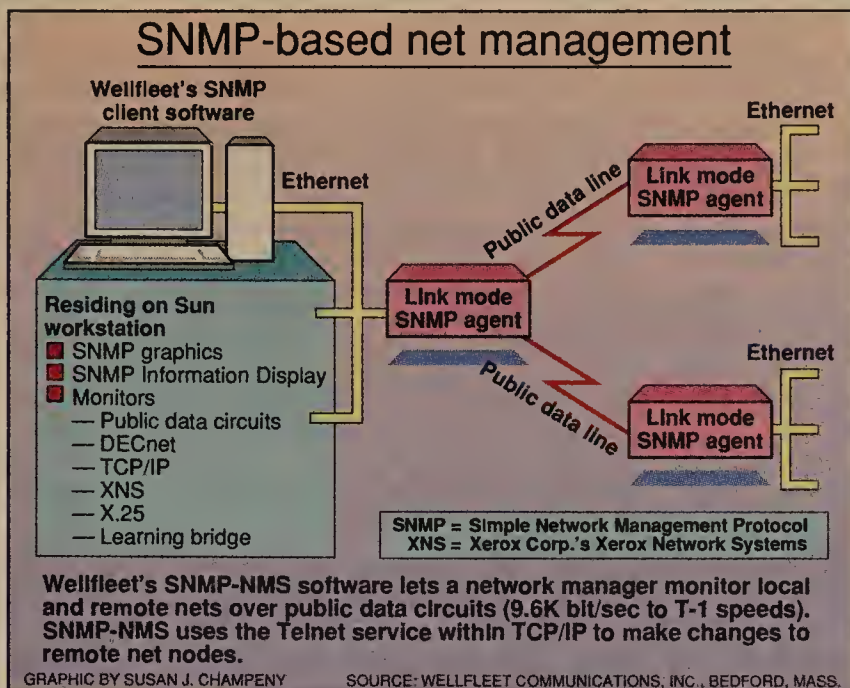
# LOCAL NETWORKING

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## Worth Noting

“We had trouble maintaining a consistent, error-free data flow to our local net over our thick coax Ethernet. Sometimes I felt like pouring acid on the wiring to put the network out of its misery.”

David Chatfield  
Network administrator  
Cleveland State University



## Wellfleet software lets users manage TCP/IP nets

Net control pack is based on SNMP protocols.

By Laura DiDio  
Senior Editor

BEDFORD, Mass. — Wellfleet Communications, Inc. last week introduced software that lets network administrators monitor and manage local and remote Transmission Control Protocol/Internet Protocol-based Ethernet nets.

Wellfleet's Simple Network Management Protocol Network Management Software (SNMP-NMS) is based on SNMP, a standard set of net management specifications for TCP/IP nets.

SNMP-NMS provides network managers with a graphical map of the net topology and provides statistics on net usage and perfor-

mance. The client software works in conjunction with the company's SNMP Agent software. This software runs on a communications server and performs bridging and routing functions that allow the network administrator to monitor and manage multiple local nets from the Sun workstation.

The SNMP Agent software collects net management data to transmit to the SNMP-NMS net management console. The software also transmits alarms to the net manager on any performance problems on the networks, said Mark Strangio, Wellfleet's director of systems marketing.

SNMP-NMS enables the network administrator to distinguish the nature of the failure: a loose cable, faulty node or software problem. By establishing a session with the local or remote node via TCP/IP's Telnet facility, the administrator can get more information on the problem.

One beta test user of SNMP-NMS is Combustion Engineering, Inc. in Windsor, Conn., an engineering and manufacturing company that builds chemical, oil, coal and nuclear power plants.

“Before we tested SNMP-NMS, we usually had to wait until the user screamed for help before we were aware of any problems,” said Rusty Rowell, the company's senior network analyst.

“SNMP-NMS provided us with incredibly fast failure alerts so that we could respond to problems,” he said.

The SNMP-NMS client software can also be used to manage nets based on Digital Equipment Corp.'s DECnet, Xerox Corp.'s XNS and the Open Systems Interconnection X.25 protocols.

SNMP-NMS is available now at a list price of \$15,000, which includes installation and one-year on-site service and support. ■



Wellfleet's William Siefert

mance. It allows a network administrator to isolate problems, disable any device on the network or reconfigure the net to add nodes or devices, said William Siefert, Wellfleet's vice-president of advanced technology.

SNMP-NMS client software runs on a Sun Microsystems, Inc. Model 3/50 or 3/60 graphics workstation, running Sun/OS Version 3.5 or Version 4.0 in conjunction with X/Windows Version 11, Release 2 or 3.

## Optical disks ready for popularity surge

Analysts predict bright future for technology as users start seeing price, performance benefits.

By Susan Breidenbach  
West Coast Bureau Chief

SAN FRANCISCO — To date, optical storage technology has made few inroads in the mainstream world of local networks, but analysts and vendors expect that to change in the coming year.

Optical disks in jukebox configurations offer users near-on-line storage at a fraction of the cost of magnetic storage. They also provide unlimited off-line storage, since little used optical platters can be removed from the system and stacked on a shelf.

According to BIS CAP International, a Norwell, Mass.-based market research firm, it costs about \$10 per megabyte to store data on-line on a Winchester hard disk. By contrast, the cost of storing data in a jukebox subsystem containing 25 5¼-in. erasable optical disks is \$2.40 per megabyte.

(continued on page 14)

### Mixed media

#### Winchester 5.25-in. disk

- 26 msec average access time
- \$10 per megabyte
- 765M-byte capacity

#### Optical WORM 5.25-in. disk

- 60 msec access time
- \$3.00 per megabyte
- 1.6 gigabyte capacity

#### Erasable optical 5.25-in. disk

- 35-50 msec access time
- \$12 per megabyte
- 1 gigabyte capacity

#### Optical jukebox 5.25-in. erasable disk (25 platters)

- \$2.40 per megabyte
- 1 gigabyte capacity

Optical disk storage for local nets offers greater capacity and lower prices than standard Winchester devices.

SOURCE: BIS CAP INTERNATIONAL, NORWELL, MASS. GRAPHIC BY SUSAN J. CHAMPNEY

## Datapoint product spurt based on net standards

By Susan Breidenbach  
West Coast Bureau Chief

NEW YORK — Datapoint Corp., the inventor of Arcnet, introduced a suite of products at the recent PC Expo here that move the proprietary networking system into the industry-standard local network arena.

The products include a new network operating system, a series of diskless workstations, an IBM Systems Network Architecture gateway and both Open System Interconnection and Transmission Control Protocol/Internet Protocol software.

Central to the product introduction was DataLAN/XA, server software based on the Server Message Block (SMB) client/server protocol used in Microsoft Corp.'s MS-Net, OS/2 LAN Manager network operating systems and their derivatives.

DataLAN/XA can run Network Basic I/O System applications and provide file and print services to users of single-user and multiuser DOS programs. The server software runs on the RMS/XA operating system originally designed for Datapoint's minicomputer systems.

“Before, we had a proprietary

minicomputer system that didn't support networking standards like NETBIOS and SMB,” said Clark Charbonnet, product manager for Datapoint's personal computers and workstations. “We've crossed a significant bridge with this announcement.”

Existing RMS/XA-based minicomputers can support terminals and personal computers. The latter, however, access the server in a roundabout way, going through a dedicated personal computer running special software.

DataLAN/XA offers higher performance file services because it communicates directly with the workstations via SMB protocols, Datapoint said.

DataLAN/XA will run on an Intel Corp. 80386-based microcomputer — it has been certified compatible with IBM's Personal System/2 Model 80 — or on Datapoint's 7800 series of multiple processor systems. The 7800 systems have two to six 80386 chips that operate in a symmetrical architecture. All server tasks queue up single file and go to the first available processor.

Pricing for the DataLAN/XA software starts at \$3,000 for a

(continued on page 14)



## Optical disks ready for popularity surge

continued from page 13

To date, however, most of the optical disk jukeboxes in operation are linked to mainframes or dedicated image-processing systems. The early adopters of optical storage in the local network arena tend to be computer-aided design users or companies in paper-intensive industries.

"There hasn't been a lot of activity in the LAN market so far, but users are showing more interest," said Abigail Shaw, a senior industry analyst with Rothchild Consultants, a consulting firm here that specializes in optical memory technology.

Vendors that recently introduced optical storage systems aimed at local network users confirmed Shaw's statement.

Racet Computes, Ltd., a manufacturer of high-capacity, high-performance storage subsystems for personal computer networks, reports "phenomenal demand" for an erasable optical drive it began shipping in February. Half the telephone inquiries the company receives from prospective customers concern the erasable drive, a company spokeswoman said.

Optical drives are slower than their Winchester counterparts, so they seem destined for secondary storage on local networks for the foreseeable future. According to BIS CAP International, a high-end magnetic disk can retrieve a 100K-byte chunk of data in a few seconds, while an optical jukebox can take up to 40 seconds to perform the same function.

The experts seem a bit puzzled that more users haven't rallied to Write Once,

Read Many (WORM) drives as a replacement for tape backup systems. The tape systems are notoriously slow, both on up-take and retrieval, and network administrators recite a litany of complaints about their shortcomings.

"Optical is the perfect media for backup," said Mason Grigsby, president of Acc-tex Information Systems, a systems integrator here that specializes in optical technology. "It's fast, it runs unattended, and it has a longer shelf life than tape."

In a continuous write operation such as a file server backup session, a WORM drive isn't just faster than tape; it will outperform a Winchester drive. And data backed up on an optical or magnetic disk can be accessed randomly, while a tape drive has to look for the requested information in a much more cumbersome, linear fashion.

McCready said a lot of users have been waiting for erasable optical drives, which only recently began to appear on the market. That is somewhat ironic, he added, because erasability will cost a lot more, and it isn't really needed for backup purposes.

"Eighty percent of the files written to tape are never erased, but network administrators are conditioned to want erasability," McCready said. Although erasable optical drives have finally joined WORM drives on the scene, he added, the manufacturers have failed to include an essential ingredient: appropriate backup and storage management utilities.

McCready says he sees local network users eventually combining magnetic and optical media in order to get both the on-line performance of the former and the nearly infinite off-line capacity of the latter.

"You just need an intelligent storage subsystem that decides what data goes where," he said.

The subsystem software would identify the data that is accessed most frequently and keep it on-line on the magnetic drive, while less used data would be stored in an optical jukebox. ■

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## Datapoint products based on standards

continued from page 13

16-user license. Because of the binary compatibility between industry-standard 80386 systems and the 7800 series, users who start with the 80386 systems can easily migrate to the 7800 series as their needs increase, said Tom Hodges, manager of networking products for Datapoint.

In addition to the server software, Datapoint introduced three diskless workstations, beginning with an entry-level 8088-based model, the 7215. The mid-range 7225/SX has an 80386SX processor, and the 7235 is based on a 25 MHz 80386.

Prices for the systems, which include built-in Arcnet interfaces, range from \$830 to \$5,995.

RMS/XA OSI is a product line that will integrate the OSI protocols into products based on the company's RMS/XA architecture.

Likewise, in RMS/XA Internet Services, Datapoint is providing a set of RMS/XA-based systems that integrate various TCP/IP services into the base operating software.

The RMS/SNA Gateway software runs as an RMS/XA application and requires a communications board that plugs into the AT bus of Datapoint's 80386-based 7700 workstation. The 7700 can be configured as a complete RMS/XA or DataLAN/XA file server, or as a communications server on a network that has a 7800 series machine or Model 80 as a file server.

The gateway board is linked to the host over dial-up or leased telephone lines or an X.25 link. The RMS/XNA gateway emulates IBM's Logical Unit Type 1, LU 2, LU 3 and LU 6.2. A four-user license for the software is priced at \$750.

Another new RMS/XA application that provides wide-area connectivity is an X.400 gateway for Datapoint's Vista-Mail electronic mail facility. As Datapoint's first OSI application, the gateway lets Vista-Mail users exchange messages with users of other X.400-compatible E-mail systems.

The X.400 gateway runs on an RMS/XA or DataLAN/XA server and costs \$5,000.

Hodges said the new Datapoint networking products will be available by the end of the third quarter. ■



# MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USERS GROUPS AND ASSOCIATIONS

## Worth Noting

**"I**t's my responsibility to educate my boss about new products and trends in communications. This improves the likelihood that he will understand the need for new projects or expenditures and give his approval."

**Stephen Carnilla**  
Director of  
telecommunications  
University of Chicago

## Top execs support RBHC entry into info services

Consent decree rules should be lifted, they say.

By **Wayne Eckerson**  
Staff Writer

NEW YORK — Executives of Fortune 1,000 companies overwhelmingly believe that the regional Bell holding companies should be allowed to offer information services, according to a recent survey.

Eighty-six percent of top executives surveyed said the Consent Decree, which prevents the RBHCs from offering information services, should be lifted. The survey, entitled "Impact of Competition and AT&T Divestiture on U.S. Business," was conducted by Touche Ross & Co., a Big Eight accounting and management consulting firm based here.

The company surveyed 560 executives, including chief executive officers, board chairmen, chief information officers and vice-presidents of information systems, telecommunications and data processing.

A majority of these executives also agreed that the RBHCs should be permitted to offer long-distance services and manufacture communications equipment. The Consent Decree also prohibits the RBHCs from entering these lines of business.

Seventy-one percent of executives surveyed said the RBHCs should be allowed to manufacture equipment, and 63% said the

RBHCs should be given permission to provide long-distance services.

Despite their overwhelming support for deregulation of the RBHCs, executives expressed uncertainty over whether deregulation would continue in the future. More than one-quarter (27%) of those interviewed said that deregulation would lose momentum in the near future, and 14% said the imposition of new telecommunications regulations was likely.

The survey also revealed that top management and senior information systems executives disagree sharply on the question of whether the quality of telephone service and customer service has improved since deregulation.

Two-thirds (67%) of telecommunications managers said the quality of phone service has improved since divestiture, while 83% of corporate executives said phone quality has declined since divestiture. Similarly, 57% of telecommunications managers said customer service has improved, while 88% of top executives said customer service has declined.

"Obviously, phone companies have paid more attention to telecommunications managers who will buy their equipment than top executives," Kraemer said. ■

## The France Telecom Users Group resume

**Founded:** June 1987

**Membership:** 20 U.S. companies, each having at least one 56K bit/sec link between the U.S. and France.

**Purpose:** To foster dialogue between France Telecom and its largest U.S. customers.

**Officers:**

- Chairman:** Bowley Moore  
Vice-president,  
Morgan Guaranty Trust Co. of New York
- Vice-chairman:** Steven Kruey  
Manager of telecommunications,  
Data General Corp., Westborough, Mass.
- Secretary treasurer:** William Taylor  
Manager of transmission services,  
Hewlett-Packard Co., Palo Alto, Calif.

Officers were elected at the May 5, 1989 meeting, which was held in conjunction with the annual International Communications Association show in Dallas.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: FRANCE TELECOM, INC., NEW YORK

## Users group helps GE win net contract

France Telecom Users Group speaks out for U.S. customers of French telecom authority.

By **Barton Crockett**  
Senior Editor

NEW YORK — In designing an innovative international network, General Electric Co. enlisted the aid of a unique users group to win concessions from one of the three giant international carriers involved in the net deal.

In May, GE contracted with AT&T, British Telecommunications PLC and France Telecom, Inc. to build a private network linking GE sites around the world ("GE to reveal plan for global enterprise net," *NW*, May 29). As part of the international net deal, France Telecom agreed to supply service at nontariffed, volume-discounted rates — a first according to carrier officials.

Also for the first time, France Telecom capped GE's rates at a preset ceiling and agreed to reduce rates if the cost of providing service declines. The entire contract will be billed in U.S. dollars only — something largely unheard of in international networks of this size.

Winning such concessions meant convincing one of Europe's monopoly carriers to break with tradition.

"These organizations are used to telling users what they can have, not the other way around," said Barry Volante, GE's manager of telecommunications planning.

Volante pitched the ideas to France Telecom executives in private meetings. But he also lobbied publicly for them through an association of the carrier's largest U.S. customers, the France Telecom Users Group (FTUG), based here.

FTUG consists of about 20 full-

time members, each paying annual dues of \$400, and another 30 or so part-time members that pay \$100 for each meeting they attend. FTUG meets twice a year, once in conjunction with the International Communications Association's annual conference and once again here in the fall.

To a large extent, FTUG grew out of GE's efforts to secure its international network contract.

The group held its inaugural meeting in June 1987, shortly after a meeting at which Volante outlined GE's desire for a certain kind of net arrangement to France Telecom's director general, Marcel Roulet, and other U.S. customers of the carrier.

Volante's speech made a big impression on France Telecom executives, who were eager to make the carrier more competitive in preparation for Europe's common market of 1992.

"We basically decided to form FTUG to get more of the kind of input we got from Volante," said Susan Mirbach, France Telecom's director of marketing for major American accounts.

After FTUG was formed, members of the users group pressed France Telecom to give its customers the kind of concessions GE eventually won. According to Volante, this played a big role in helping GE secure the contract.

Mirbach said that agreeing to sponsor a users group required a great deal of soul-searching on France Telecom's part. "By doing this, we basically said that we were going to listen to and respond to user demands. Being a monopoly carrier, I wasn't sure France Telecom was ready." ■

## Association Watch

More than 1,000 users of electronic data interchange are expected to attend the First International Congress of EDI Users, which will be held Aug. 9 to 11 in Vancouver.

Jointly sponsored by the Transportation Data Coordinating Committee: The Electronic Data Interchange Association and the EDI Council of Canada, the conference will feature speeches from top industry and government leaders from around the world, more than 30 workshops and seminars, and exhibits by approximately 100 vendors.

According to Marshall Spence, president of the EDI Council of Canada, the goal of the First International Congress is to form an international EDI users group that will conduct annual meetings around the world.

The group will help further the use of EDI in international trade and enable EDI users worldwide to share ideas for implementing the technology in their businesses, Spence said.

The three-day conference costs \$395 per person. For more information, write to EDI International Congress, 5401 Eglinton Ave. W., Suite 103, Etobicoke, Ont. M9C5K6, or call (416) 621-7160. ■

## EXECUTIVE BRIEFS

BY WAYNE ECKERSON

**Caught napping.** Ever fallen asleep during a business presentation? Don't feel bad, you're not alone.

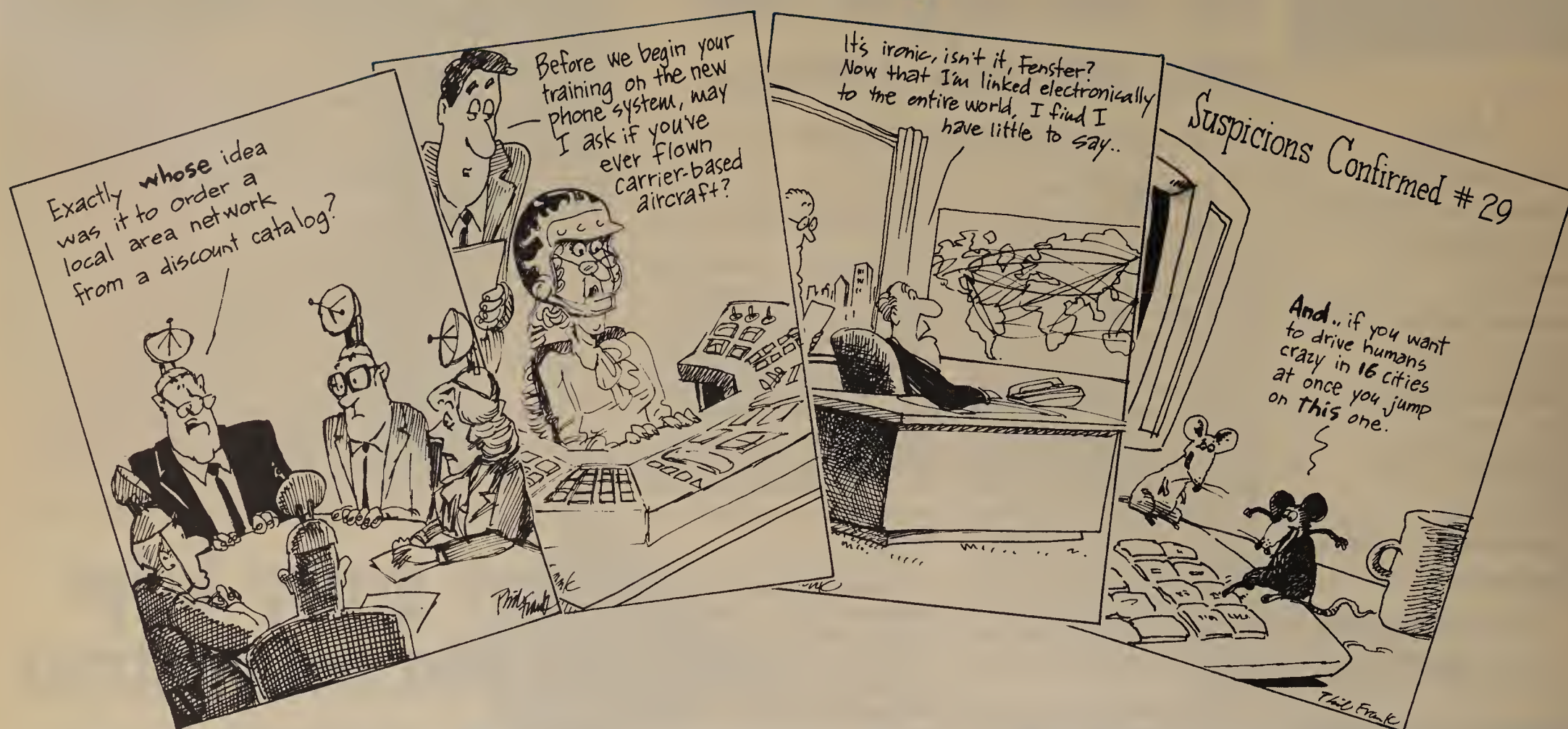
Four out of 10 top executives admit they have dozed off or fallen asleep while someone was delivering a business speech, according to a report by Motivational Systems, a management development and sales training organization in West Orange, N.J. The report surveyed 200 vice-presidents in Fortune 1,000 companies in the U.S. According to the report, survey respondents said 43% of all business presentations are boring, suggesting a correlation between dull business presentations and the number of snoozing professionals in the audience.

Roger Flax, president of Motivational Systems, said boring sales presentations not only put listeners to sleep, they can result in lost sales and credibility for the speaker's company. In addition, dull training presentations can produce inadequately trained employees. Flax offers several pointers for delivering stimulating presentations:

- Have a thorough knowledge of your subject matter.
- Look and feel confident.
- Be enthusiastic.
- Don't read or memorize your presentation.
- Avoid speaking in a monotone.
- Vary the speed and volume of your delivery.
- Use natural body language. ■



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# PRODUCTS & SERVICES

THE LATEST OFFERINGS FROM VENDORS AND CARRIERS

## Worth Noting

**N**ext week: *Network World* explores the changing roles of local network bridges in a LAN Buyer's Guide.

## First Look

### Data Switch unveils channel extender

**Data Switch Corp.** recently introduced a channel extender that enables IBM 3090 and compatible mainframes to communicate with direct-access storage devices (DASD) at distances up to 1,300 feet.

The **Model 9390** is 33% less expensive than IBM's 3044 channel extender, which costs \$29,400. According to a spokeswoman for Data Switch, it can support distances 62% longer than IBM's product, which has an 800-ft. limit.

The increased distance gives users more flexible, cost-effective options in configuring data centers, the company said.

It also offers the ability to isolate DASDs for security purposes.

The Model 9390 connects mainframes to IBM 3990 Models 1 and 2 as well as the IBM 3380 Model CJ2 DASD control units at 3M byte/sec. It is software-transparent to the computer and control unit channels.

Extender units are connected by the 1/2-in. shielded, twisted-pair Uni-Cable, which is less bulky and overcomes the distance limitations of bus and tag cabling.

With bus and tag cables, the bus portion carries data while signaling is carried over the tag.

The Model 9390 is available now.

It is priced at \$19,800. Data Switch is also offering a rental option for \$895 per month, with a minimum rental period of three months.

**Data Switch Corp., 1 Enterprise Drive, Shelton, Conn. 06484; (203) 926-1801.** ☐

## NCD display supports DECwindows

By Tom Smith  
New Products Editor

**MOUNTAIN VIEW, Calif.** — Network Computing Devices, Inc. (NCD) recently announced a software option that will enable its display station to access and display data from Digital Equipment Corp. devices supporting DECwindows.

The NCDnet software allows the NCD16 to access DECwindows — DEC's implementation of the X/Window System standard for windowing applications — in both VMS and Ultrix operating environments.

The company said the NCD16 is the first third-party display capable of accessing DECwindows in VMS environments. "Until now, DECwindows applications on VMS were accessible only through a DEC workstation costing \$5,000 or more," said Judith Estrin, executive vice-president of NCD. "Now an under-\$3,000 device gives the user access to applications on DEC VMS- and Ultrix-based machines."

Based on a Motorola Corp. 68000 microprocessor, the NCD16 is an intelligent display with 1M byte of memory used for graphics and windowing manipulation.

The device can participate as a DECnet end node when connect-

ed to a DEC host via Ethernet or a serial link, according to NCD. Serial communications is supported using DEC's Digital Data Communications Message Protocol over RS-232 connections or high-speed modem links. The NCD16 also supports Transmission Control Protocol/Internet Protocol.

Support for the Command Terminal Protocol enables the workstation to establish a terminal-emulation session from a DECnet host to a remote host that supports X/Windows or DECwindows. The Command Terminal Protocol session can be maintained simultaneously with X/Windows and DECwindows sessions.

NCDnet software can be downloaded from a VAX via DEC's Maintenance Operations Protocols. "By downloading the software, it's easier to upgrade to new software releases," Estrin said.

TCP/IP support will continue to be a standard feature with the NCD16.

NCDnet software is available now as an option with NCD16 units, and it is priced at \$200. Users of previously purchased net display stations can add NCDnet for \$150.

NCDnet requires 1.5M bytes of memory. Earlier versions of NCD16 only offered 1M byte of memory. NCD16 with 1.5M bytes of memory costs \$2,800. NCD16 with 1M byte of memory is priced at \$2,500.

NCD can be reached in writing at 350 N. Bernardo Ave., Mountain View, Calif. 94043, or call (415) 694-0650. ☐

## Zenith takes wraps off fiber-optic Ethernet LAN

By Sarah Vandershaf  
West Coast Correspondent

**GLENVIEW, Ill.** — Zenith Communications Products recently introduced FiberStar, a fiber-optic Ethernet local network.

Components of the 10M bit/sec FiberStar include a hub coupler and personal computer interfaces with built-in fiber-optic transceivers for IBM Personal Computers, ATs, XTs and compatibles. The hub can link eight to 14 devices in a star topology.

Work group hubs can be connected using a fiber-optic backbone that can span up to 4 km, according to Semir Sirazi, general manager of Zenith Communications Products, a group within Zenith Electronics Corp., based here. FiberStar is ideal for noisy environments such as factories, Sirazi said.

Because FiberStar has fewer components than other fiber-optic systems, there are fewer parts

that could cause problems, Sirazi said. He also said the product will be targeted at the federal government, the military, manufacturers, universities, research centers and financial institutions.

FiberStar can be used with various network operating systems and software packages, including Novell, Inc.'s Netware, 3Com Corp.'s 3+ and 3+ OPEN, Transmission Control Protocol/Internet Protocol and Sun Microsystems, Inc.'s PC-NFS.

Sirazi said fiber networks installed today could be used in the future for high-speed technologies such as Fiber Distributed Data Interface.

FiberStar interface cards cost \$895, and the eight-port hub is priced at \$4,175. A 14-port hub costs \$5,975. "The FiberStar system is competitively priced compared with twisted-pair nets," Sirazi said. Zenith is now taking orders for evaluation units. ☐

## Oracle releases four data base packages

Personal computer LAN software for OS/2, Unix, VINES and NetWare makes debut at PC Expo.

By Laura DiDio  
Senior Editor

**NEW YORK** — Oracle Corp. introduced data base software for four popular local network operating systems at the recent PC Expo show here, as expected.

Oracle Server 1.0 is a network version of the company's Oracle Version 6.0 relational data base software for personal computers. The company announced versions of the software for OS/2, Unix, Banyan Systems, Inc.'s VINES and Novell, Inc.'s NetWare.

The software runs on Intel Corp. 80386-based servers and includes a requester shell that runs on workstation clients. The requester intercepts data base calls issued by personal computer applications and routes them to the data base management server for processing.

The server sends down only the data records requested, whereas other data base servers send down entire blocks of data to clients, which must process the query locally.

Only the Oracle Server 1.0 for Unix and NetWare 386 versions are actually new ("Oracle plans LAN server DBMS debut," *NW*, June 19). Oracle Server for OS/2, a competitor of SQL Server developed by Sybase, Inc., Ashton-Tate Corp. and Microsoft Corp., was announced nine months ago at Comdex/Fall '88. Oracle said the product would ship in March, but it never did.

In April, Oracle introduced Oracle Server for VINES and said it would ship in May. That release date has now been pushed back until August.

To expand the scope of Oracle Server to run in several major local network environments, the company has had to write new program calls that support the application programming interfaces for Network Basic I/O System, Named Pipes, Integrated Packet Exchange/Sequenced Packet Exchange and VINES protocols, said Bruce Mitchell, vice-president of Oracle's personal computer products division.

Oracle will add support for Transmission Control Protocol/Internet Protocol, Digital Equipment Corp.'s DECnet and IBM's Advanced Program-to-Program Communications/LU 6.2 and 3270 protocols in the first quarter of 1990, Mitchell said.

The fact that Oracle is developing versions of the data base management software for OS/2,

Unix, NetWare and VINES nets is a boon for users, Mitchell said. Oracle Server's two main rivals, Ashton-Tate's SQL Server and IBM's Database Manager, do not support multiple operating systems.

Ashton-Tate's SQL Server is comparably priced at \$2,495. However, it only runs on OS/2-based machines, while Oracle promises to offer its software to run on four major networks, said Mike Howard, an analyst at Infonetics, Inc., a consulting firm in Santa Clara, Calif.

The Database Manager portion of IBM's OS/2 Extended Edition, which will also compete

**O**racle Server 1.0 is a network version of the company's Oracle Version 6.0.

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with Oracle Server 1.0, only provides users with connections to IBM host-based data bases, Howard added.

Oracle Server Version 1.0 incorporates several features not found in SQL Server, he said, including a multiprocessing architecture and an advanced locking scheme that gives more network users concurrent access to data base files.

Despite these features, Hugo Blasdel, vice-president of Blasdel and Co., a data base consulting company in Washington, D.C., and a member of Oracle's users group, said he's installing SQL Server because it's available now and has several capabilities not found in Oracle Server for OS/2.

For instance, Blasdel said, SQL Server lets the user build triggers into the data base engine to perform data integrity checks that determine whether data is valid.

Oracle Server is also expected to consume more memory per workstation than SQL Server, which uses 50K bytes of memory per workstation, he said.

Oracle Server 1.0 for VINES costs \$4,999. Oracle Server for OS/2 is priced at \$2,499, and the Unix 386 version is \$3,999. Both will ship in October. No pricing has been set for the NetWare 386 version, which is expected to ship in 1990, Mitchell said. ☐



# OPINIONS

## NETWORK DESIGN

BY JAMES KOBIELUS

### User mobility is the challenge of the future

Mobile communications technologies have become the epitome of late-1980s yuppie status toys. A recent installment of the comic strip "Zippy" illustrates this fact: In it, Shelf-Life, an overstimulated technogeek, cruises along in his gas guzzler, boasting to his companion Griffy that he has a cellular telephone, *plus* a facsimile machine in the glove compartment.

The message is that mobile communications is still a bit flaky, a toy for people with too much disposable income. This is more or less how personal computers were viewed in the early years of this decade. Even now, most corporate telecommunications planners regard technologies such as cellular phones and mobile data communications as little more than a sideshow, albeit an interesting one.

But the real game, in their eyes, is what might be called fixed or backbone networks. According to traditional thinking, networks are like fixed railroad routes between established population centers.

Gradually, though, the examples of companies such as Federal Express Corp. and Frito-Lay, Inc., which have secured competitive advantage by providing mobile data terminals to employees in the field, are driving users to rethink the role of mobile communications. Mobility — of users, applications, resources and network management — is replacing stability as the principle upon which networks are designed. Mobile communications is doing to traditional telecommunications what the personal computer did to the mainframe — loosening up a fairly rigid order of things.

Telecommunications managers are now realizing that moves, adds and changes consume a larger portion of their budgets than initial installation. Why not design networks for which moves, adds and changes are the norm rather than the exception?

The business environment has become ever more mobile and flexible itself, so the ultimate goal for network designers and planners must be to break down the remaining technological barriers to user mobility. The dominant design principle must be that users, no matter where they are located, have access to a full range of network services.

Network planners must realize that mobile communications does not always require a portable terminal (for example, cellular phones, mobile data sets and very small aperture terminals). These may be very useful but may not be justified for every user and every application.

There are mobile communications applications with no moving parts. Pay telephones, automated teller machines, point-of-sale systems and call forwarding are all means of delivering a complete mix and consistent level of services to users wherever they may roam. The only moving parts in the system are the users themselves.

Strange as it may seem, the ultimate mobile communications technology in both public and private networks may be Integrated Services Digital Networks, for three reasons.

First, ISDN will establish universal standards of connectivity and compatibility, thereby transforming moves, adds and changes from a major engineering feat to a minor implementation detail.

Second, the sideband signaling system will provide a powerful tool for service delivery and network management from any location in the network. Third, ample bandwidth all the way up to the desktop ensures that any mix and level of services can be delivered to any location.

Maybe someday a network will be defined not by how its backbone and attached nodes are laid out, but by how far its users can roam without suffering loss or degradation of service. ■

*Kobielus consults on information technology in Alexandria, Va.*

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## EDITORIAL

### Users must attend to fax security, cost containment

Users are enthusiastically adopting facsimile technology, but few have adequate plans to contain fax costs, and fewer still are paying attention to security issues involving these machines.

Although fax technology has been around for decades, only in the last few years has it come to play an important role in corporate communications. Today, the machines are spreading like wildfire, and for some users, fax traffic is growing faster than any other type of communications.

General Electric Co. is a good case in point. Stanley Welland, manager of corporate telecommunications at GE, estimates the company has 20,000 to 30,000 fax machines. He attributes the 10% growth in data traffic he sees each year to fax usage.

According to The Eastern Management Group, a research and consulting firm in Parsippany, N.J., sales of fax equipment — stand-alone machines and adapters for computers — will reach one million units per year by 1990. By 1994, annual sales will reach roughly two million, nearly three times the 1988 total.

Although fax machines have reduced corporate expenditures on overnight mail — couriers now blame them for softening business — few companies have implemented proper fax cost controls. Some companies have tried to optimize use of their machines by refusing to buy more. But this type of control is as bad as letting the fax invasion go un-

checked. Although purchasing more machines may be expensive, having too few could cost more in lost productivity, if not lost business.

Thankfully, two recent technological advances will help simplify the job of optimizing use of fax machines. The first is accessories, such as fax boards for personal computers, that en-

nation machine is busy. They also let firms support more employees per fax machine.

Besides cost control, the other issue coming to the fore with the increased reliance on fax technology is security. Fax machines are being used to transmit highly sensitive information; however, most are located in common areas such as hallways, and there is no way to determine whether faxes actually reach their intended destination.

Consider what happened to Cenith Partners L.P. last December when it was trying to determine what to do with the assets of Ionics, Inc., a company it planned to acquire. A third company involved in the transaction, Osmonics, Inc., inadvertently faxed a 47-page "strictly confidential" memorandum about the deal to the Chicago bureau of The Wall Street Journal. The Journal's fax number, it turns out, was similar to one of Osmonics' major shareholders.

It is even more common to have sensitive documents spew out of remote fax machines only to be pinned to bulletin boards until they can be picked up. Conversely, documents left to transmit often end up languishing around the machine for days.

The fax machine has become an indispensable business tool, but users have yet to consider it as a serious corporate asset. It is time to study fax costs, implement cost controls and secure use of faxes. ■

**A**ccording to The Eastern Management Group, sales of fax equipment will reach one million units per year by 1990.

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able computers to generate and receive faxes. Fax servers make it possible for employees throughout a building to share machines and eliminate time spent walking to and waiting for stand-alone machines.

The second innovation is the advent of dedicated fax network services, now being offered by companies such as MCI Communications Corp. These services can be used with the least expensive fax machines, and they provide message store-and-forward, message broadcasting and message storage when the desti-



# OPINIONS

## LAN MANAGEMENT

BY KATHERINE EPES BARRETT

### Departmental LANs mature into strategic resources

As personal computer local networks have spread through the corporate environment, they have become vital to the daily operation of business. The departmental local net, as a result, now must take another big step in its development and mature into a corporate resource.

Successfully integrating the independent local-area networks into the existing corporate framework requires meshing the numerous independent departmental local networks technically, organizationally, operationally and financially to the satisfaction of both the corporation and the local net user.

Trying to convince users that this is a necessary and beneficial step is like trying to convince Peter Pan to grow up. The primary reason for the local network's success has been its independence from any central corporate authority. Each local net has been customized to meet the specific needs of its users. Conversely, corporate systems have required users to accommodate the needs of the systems and corporate business first.

#### Spirit of independence

The local net's continued success depends on retaining the spirit, if not the fact, of independence. The user's personal computer — whether an IBM Personal Computer or compatible, Apple Computer, Inc. Macintosh or workstation — must remain "personal."

Technically, there is no seamless way to tie multivendor local-area networks together at this time. Physical connectivity can be achieved through the use of bridges, gateways and software patches. However, this connectivity is restricted to basic file transfers and does not provide interoperability among different workstations, operating systems and software applications.

True interoperability requires standardization of the local net operating systems and application packages. The long-term solution lies in the development of products adhering to the Open Systems Interconnection standards. Users could then use their preferred workstations

and applications while interacting with the rest of the company.

Organizationally, the consolidation of departmental local-area networks is more a political than technical issue. Users must be convinced that being relieved of the administrative chore will result in no loss of freedom and a substantial increase in performance.

Typically, the departmental local net is maintained by the resident computer guru or the newest junior employee. Neither has the necessary time or expertise to operate the local

**T**he consolidation of departmental local nets is more a political than technical issue.

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network as a critical corporate resource. Centralizing the management responsibilities of all local networks will lower management costs, increase management expertise and decrease downtime.

Operationally, assigning responsibility for local net management raises the difficult problem of selecting the most appropriate department. The options are the MIS/data processing department, the microcomputer department, the communications department or a newly created department.

The simplest and most diplomatic solution is to split the responsibilities between departmental administration and centralized management. This way, the department retains a degree of independence while the corporation gains control of a valuable asset.

Each department is responsible for assigning one person the role of department administrator. This administrator would be responsible for adding and deleting users for that particular department and providing printer maintenance — for example, changing the toner or ribbon cartridge, loading the soft fonts and preliminary troubleshooting. The departmental manager would be trained by the network manager and given only basic

levels of network administrator access.

The centralized network management function should be in the MIS department. As a corporate resource, the local-area network needs standard operating procedures, operators, system programmers, archived tapes and all the other accoutrements of a system critical to corporate operations.

No other department can provide the necessary support as quickly and as easily as MIS. A word of warning, however. If the MIS department makes the local network as unapproachable and inflexible as other systems traditionally under its aegis, it will have a major revolt on its hands. And, because local net users now often include senior management on its support staff, MIS may find itself in deep trouble.

Finally, the cost of the local-area network must be shifted from the individual departments to the corporate budget. The equipment, operations and management costs must be allocated equitably among all users. The primitive nature of the network management functions in existing local net software precludes accurately charging each user for actual network use.

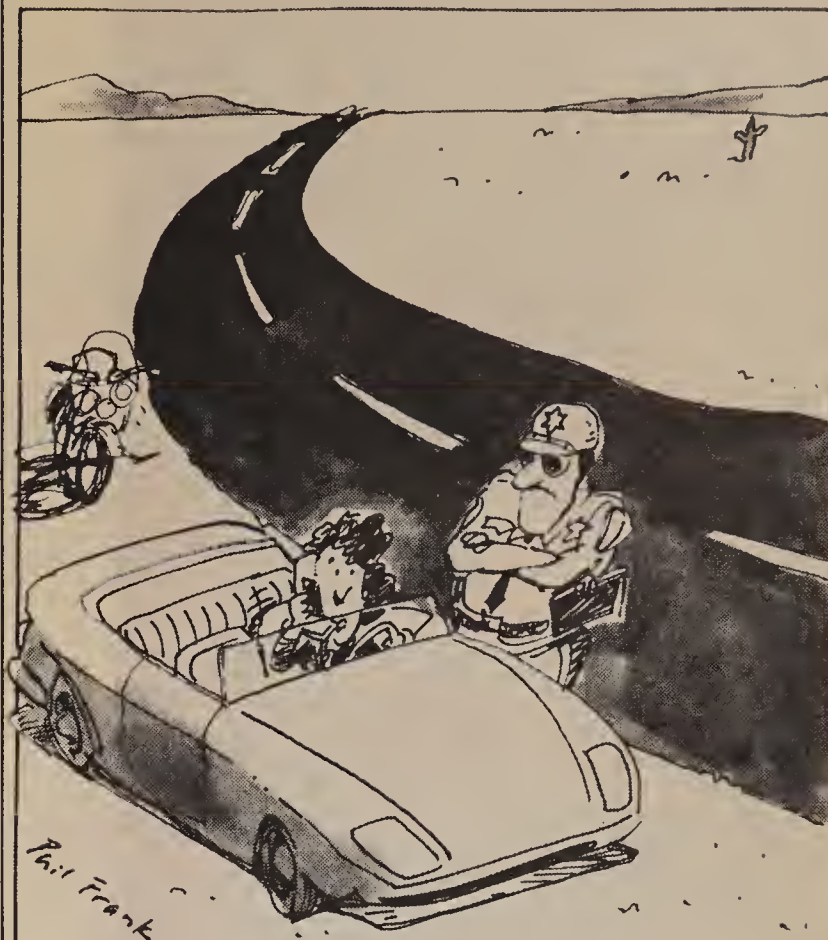
The simplest solution is to charge users an installation charge and a minimal monthly usage charge. The installation charge would include the cost of the network board, the workstation software and any cabling required to attach to the network. The monthly usage charge would be divided equally among the total number of users and be based on monthly network management costs plus the projected yearly cost for system upgrades equally apportioned by month.

Each organization must approach the integration in a way that fits its style. The local-area network has evolved into a valuable corporate asset and must be protected. The safeguards for local nets, which are similar to those used for other corporate computing systems, are only the beginning of the process of integrating the local net into the corporate mainstream.

Once integrated in a way that satisfies user needs and the organization's political environment, the local net will mature into a strategic system for the corporation. **Z**

## TELETOONS

BY FRANK AND TROISE



Can I call you back?  
There's someone at the door.

## LETTERS

#### The knock of opportunity

Alan Pearce's opinion column ("Problems continue to postpone the information age," NW, May 29) provides a clear road map — or should I say "roadblock map" — of what is inhibiting our country's efforts to retain its position of leadership in the worldwide telecommunications industry. The regional Bell holding companies have a vested interest in postponing major industry innovation until they can fully participate, while enhanced service providers and equipment manufacturers rightfully fear unleashed RBHCs.

Pearce provides the solution to the dilemma when he

discusses the three FCC vacancies to be filled. President Bush can resolve the problem by appointing visionaries, as opposed to ideologues, to the commission.

The industry cannot and will not resolve the competitive tensions, either in the short term or long term, through negotiation. Someone (*continued on page 38*)

Network World welcomes letters from its readers.

Letters should be typed, double-spaced and sent to Editor, Network World, 375 Cochituate Road, Box 9171, Framingham, Mass. 01701.

Letters may be edited for space and clarity.

**HAVE YOU FOUND CRYSTAL GAZING** and palm reading to be about as much help in managing your network as the vendor support you've been getting? Well, let us hear about it! Send us a guest column for *Network World's* Opinions pages.

Columns should be timely, opinionated, literate, thoughtful and accurate.

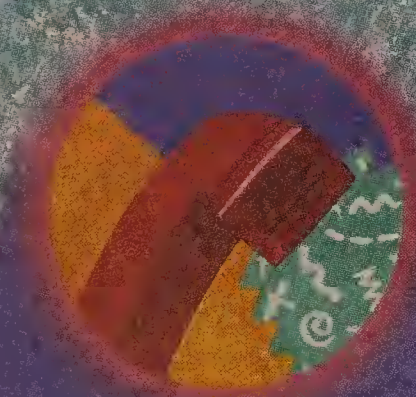
Manuscripts should be letter-quality, double-spaced and between 600 and 900 words in length. Disk or modem submissions are preferred.

If you'd like to write a column, call Steve Moore, features editor, at (508) 820-2543, ext. 732 or fax your idea to us at (508) 879-3167.

*Barrett is a manager with the network consulting practice of Ernst & Whinney in Fairfax, Va.*



## BUYERS



## GUIDE

## 800 SERVICES

# Now a fact of life

As toll-free services offer new features and lower prices, more small companies are signing up.

CONTINUED FROM PAGE 1

year. Nearly 20% dialed toll-free numbers more than three times. Amazingly, this trend toward 800 calling is only going to continue. Consider the following factors:

- The market is rapidly expanding downward. While 800 service was once just for the nation's largest users, people now are installing 800 numbers in their homes just to cut the costs of kids calling home from college. Telecom\*USA, Inc. recently launched a residential 800 service — a fixed cost of only \$2.75 per month plus a usage fee of 29 cents per minute (See "800 service to the home," page 37).

- Retail market observers predict that the number of in-store purchases will continue to drop as shopping at home becomes more popular. Some analysts predict that before the turn of the century, almost one-third of all purchases will take place away from the store.

- The advent of sophisticated network signaling technology and enhanced network intelligence is turning "plain vanilla" toll-free services into technology-packed strategic marketing tools. Companies can now terminate 800 calls at different locations based on the calling number, time of day, day of week, day of year, even how many calls have gone to the other locations. Add to that the ability of these services to prompt callers for information or block certain users from calling and you've got a powerful corporate tool.

Just how effective can an 800 number be? Ask the Quaker Oats Co. In 1981, Quaker launched a marketing campaign based around an 800 number for its



Cap'n Crunch cereal. More than 24 million people called the 800 number, stimulating sales of more than 18 million boxes of cereal. Market share during the promotion jumped 33%; even after the promotion ended, market share was still up by more than 15%.

How damaging can not having an 800 number be? An AT&T-sponsored survey of telephone buying habits conducted a few years ago found that three out of four shoppers are more likely to do business with a firm with an 800 number than an otherwise equivalent company without an 800 number.

#### What's happening in 800

Toll-free services themselves are evolving rapidly. New features, better capabilities, lower prices and broader forms of access are just a few of the improvements seen in the past year alone. The nation's largest long-distance carriers are also extending the 800 services overseas to England, France, Japan and beyond.

Specifically, however, there are four main areas of change in the 800 services arena: structure, pricing, coverage and network intelligence.

One of the most notable trends in toll-free services is the demise of the banded structure for 800 services. Effective July 1, AT&T adopted a mileage-based schedule for rating 800 Service calls, abandoning the age-old banded concept that dominated WATS and 800 services for more than 20 years. The move is part of AT&T's continuing effort to make its long-distance services easier for users to understand and more growth-oriented.

Under the banded services, customers signed up for banded lines — lines that can carry calls to specified geographical areas known as "bands," which resemble giant concentric circles. Band 0 lines typically covered all intra-state calling; Band 1, several neighboring states; Band 2, a wider area of coverage; and so on. Higher numbered bands could complete calls to all bands below them. For example, a Band 3 could complete all Band 3, 2, and 1 calls. Band 0 calls, however, required a separate line for AT&T for regulatory reasons. Importantly, this restriction never truly applied to AT&T's competitors.

From a user's perspective, these banded lines are quite confusing and uneconomical relative to competing nonbanded products. Banded services typically charge the rate applicable to the line, not the call. For example, if you call someone in a neighboring state over a Band 5 line, then you will be charged a Band 5 rate, not the lower Band 1 rate that would be applicable if you send the call over a Band 1 line.

This discrepancy has been a boon for AT&T's competitors. MCI Communications Corp., US Sprint Communications Co. and others have taken advantage of this and have come out with virtual banded services. These give users the same banded structure as AT&T WATS but charge each call according to the mileage, not the line. This saves customers a substantial amount of money.

As the market has developed, so have the number of competitive options for long-distance service. Nearly all the providers of the newer service have opted for the virtual format. However, they

use new rate structures that have largely mimicked AT&T's Message Telecommunications Service rates, which are mileage band rate tables with basic per-hour or per-minute rates. Simple, easy-to-understand, straightforward — this is what customers have wanted, and this is what they are getting.

AT&T's revamped 800 services meet these new competitive formats. AT&T created six mileage bands to be used by all of its 800 services. As an added sign of uniformity among AT&T products, the mileage bands correspond to the same mileage bands used in AT&T's other products.

With AT&T's banded service gone, few of its competitors will see a need to offer one. US Sprint is likely to drop its service, and MCI never had one.

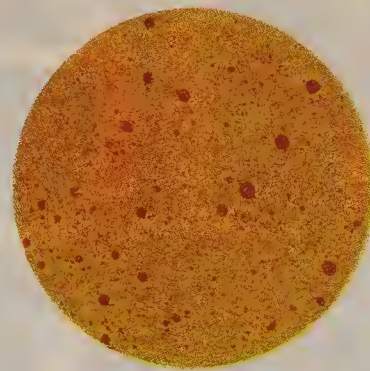
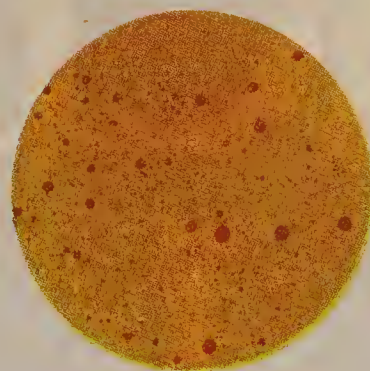
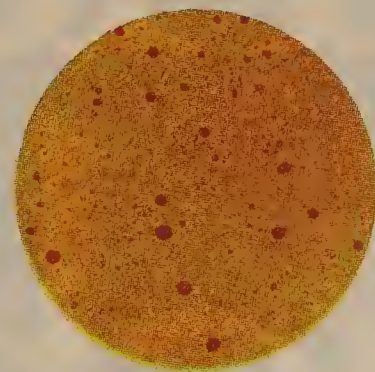
#### Volume pricing

The changes in service structure required radical changes in pricing. The industry seems to be evolving toward a basic generic pricing format for both voice services.

All the major carriers use the same mileage ranges for pricing calls. Most have volume discount plans, and all either have or are considering long-term pricing options as well.

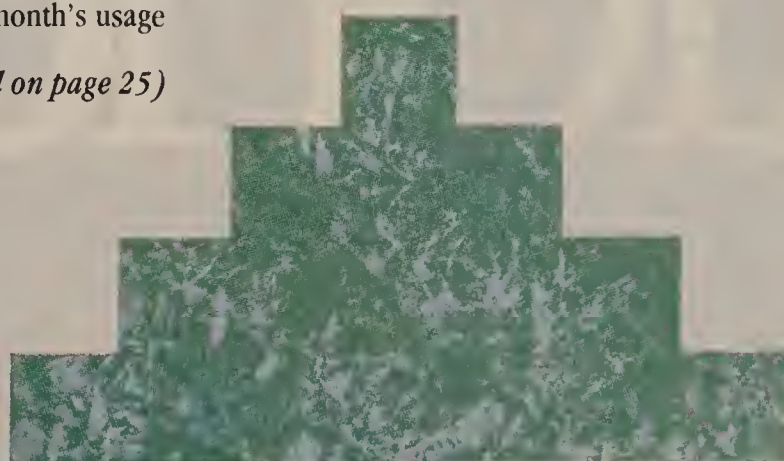
Toll-free services used to have volume discount plans built into the rate tables in the form of tapered rates: one set of rates for 0-25 hours per line, another set for 25-50, and so on. Now carriers are opting for the simple percentage discount tables that provide different discounts off the total bill based on that month's usage amount.

*(continued on page 25)*



#### CHART • GUIDE

The features and prices of a variety of carriers' 800 services are listed in a chart beginning on page 24.





There's no  
such thing  
as let  
well enough  
alone.



## MCI 800 Service.<sup>SM</sup>

More flexibility and more customization than you can get anywhere else: that's what you get with MCI 800 Service. It routes incoming traffic to different locations, according to your specifications. Such as call origin, time of day, and even holidays. Only MCI 800 Service routes overflow traffic to different lines. So you won't miss important calls. It can block traffic from anywhere in the continental U.S., so you pay only for calls you want. You can also choose dedicated, WATS-access, or business line termination. MCI 800 Service can even extend your coverage to Canada and overseas. Of course, MCI 800 Service has always had the advantage of distance-sensitive pricing with itemized call detail. And now we've introduced toll-free fax, bringing a whole new dimension to our 800 service. Taking the best and making it better. That's the philosophy behind one 800 service: MCI's. Contact your MCI representative or call 1-800-888-0800.

**MCI**<sup>®</sup>

Let us show you.<sup>®</sup>



## NETWORK WORLD

## 800 services comparison (continued on page 26)

## Dedicated access line (DAL) termination method

Carrier	800 service	Target market: Hours per month/Dollars per month	Termination method	Pricing method	Originating coverage	Onetime installation charges				Monthly recurring charges						
						Service	Line	Central office connection	Access coordination	Service	Line	Central office connection	Access coordination	Port charge	Special access surcharge	Call rounding/ Minimum average time requirement
AT&T Basking Ridge, N.J. (800) 222-0400	Megacom 800 Service	550+ \$5,000+	T-3, T-1	Virtual Banded	50 States, Puerto Rico, Virgin Islands	\$1,090	Telco cost (15)	\$514 per T-3, \$310 per T-1	\$2,300 per T-3 (12), \$207 per T-1	\$50 per service group	Telco cost	\$300 per T-3, \$62 per T-1	\$130 per T-3, \$21.70 per T-1	None	State-specific	1 second/30 seconds
ITT Communications Services, Inc. Secaucus, N.J. (800) 526-3000	Custom WATS 800/Option 803	45+ \$500+	T-1, DAL	Virtual Banded	50 States, Puerto Rico, Virgin Islands	\$150	Telco cost	\$275 per T-1, \$120 per DAL	\$275 per T-1, \$120 per DAL	\$20 per service group	Telco cost	\$60 per T-1, \$10 per DAL	\$180 per T-1, \$15.75 per DAL	None	Telco cost	6 seconds/30 seconds
Litel Telecommunications Corp. Worthington, Ohio (800) 837-0004	Macroline 800	700+ \$7,000+	T-1, DAL	Virtual Banded	Ohio; Ind.; Ill.; Mich.; Pittsburgh LATA	None	Telco cost	None	None	\$20 per service group	Telco cost per T-1, \$90 per DAL	\$53 per T-1, \$10 per DAL	None	None	Telco cost	6 seconds/30 seconds
	Nationwide 800	300+ \$4,000+	T-1, DAL	Virtual Banded	50 States	\$50	Telco cost	None	None	\$20 per service group	Telco cost	\$53 per T-1, \$10 per DAL	None	None	Telco cost	6 seconds/30 seconds
MCI Communications Corp. Washington, D.C. (800) 888-0800	800 Service - Dedicated Termination	350+ \$3,400+	T-1, DAL	Virtual Banded	50 States (7), Puerto Rico, Virgin Islands, Canada, 13 other countries	\$50	Telco cost	\$279 per T-1, \$75.45 per DAL	\$186 per T-1, \$135 per DAL	\$20 per service group	Telco cost	\$62 per T-1, \$16.50 per DAL	\$21.70 per T-1, \$9.60 per DAL	None	State-specific	6 seconds/30 seconds
Microtel, Ltd. Vancouver (800) 225-7778	Laser-EXPRESS 800	200+ \$1,500+	T-1, DAL	Flat Rate	Fla. and Ga. (13)	None	\$660 per T-1, \$200 per first DAL, \$50 each add'l	Telco cost	Telco cost	None	Telco cost	Telco cost	Telco cost	None	Telco cost	6 seconds/18 seconds
RCI Corp. Rochester, N.Y. (800) 828-2733	Net-1 800	500+ \$5,000+	T-3, T-1	Virtual Banded	50 States (9)	\$50	Telco cost	None	None	\$20 per service group	Telco cost	None	None	None	State-specific	6 seconds/30 seconds
	Prime 800	500 to 800 \$5,000 to \$10,000	DAL	Virtual Banded	50 States (9)	\$50	Telco cost	None	None	\$20 per service group	Telco cost	None	None	None	State-specific	6 seconds/30 seconds
SouthernNet, Inc. Columbia, S.C. (800) 476-1234	Dedicated 800 Service	500+ \$4,000+	T-1, DAL	Virtual Banded	50 States	None	Telco cost per T-1, \$250 per DAL	None	None	None	Telco cost per T-1, \$130 per DAL	None	None	None	\$870 per T-1, \$36.25 per DAL	6 seconds/30 seconds
Teleconnect, Inc. Cedar Rapids, Iowa (800) 728-8888	TRAC 800	600+ \$6,000+	T-1	Virtual Banded	50 States	\$500	Telco cost	None	None	\$50	Telco cost	None	None	None	\$870 per T-1	6 seconds/30 seconds
	800 SuperWATS Plus	20 to 600 \$250 to \$6,000	DAL	Virtual Banded	50 States	\$200 per line	\$120 per DAL	None	None	None	\$120 per DAL	None	None	None	\$36.25 per line	6 seconds/30 seconds
US Sprint Communications Co. Kansas City, Mo. (800) 877-6000	Ultra 800	500+ \$5,000+	T-1, DAL	Virtual Banded	50 States, Puerto Rico (11), Canada (9)	None	\$1,165 per T-1, \$350 per DAL	None	None	\$50 per service group	Telco cost	None	None	\$5 per T-1, none per DAL	\$870 per T-1, \$36.25 per DAL	6 seconds/30 seconds
	Direct 800	200 to 500 \$2,500 to \$5,000	T-1, DAL	Virtual Banded	50 States, Puerto Rico (11), Canada (9)	None	\$1,165 per T-1	\$350 per DAL	None	\$50 per service group	Telco cost per T-1, \$125 per DAL	None	None	\$5 per T-1, none per DAL	\$870 per T-1, \$36.25 per DAL	6 seconds/30 seconds

1 = 48 States due by the 4th quarter, 1989.

2 = "Free Plus" offer in effect: \$70 setup fee is waived, 500 free personalized postcards, "6 Month Dividend" equal to 10% of total usage amount greater than \$2,500. Six-month period begins with fourth full month of usage and ends with ninth full month. Credited on 10th month invoice.

3 = Waiving nonrecurring charges associated with combining routing arrangements or changing service areas from July 1, 1989 through Dec. 31, 1989.

4 = Nationwide service effective Jan. 1, 1989. National rollout starts July 1, 1989 with California and select Western U.S. states, followed by Northeast U.S., Southern U.S., Mid-West U.S. and the rest of the nation.

5 = For local line terminated services, the customer uses standard business lines to terminate calls. Most 800 providers do not charge extra for the local lines since the user pays for these directly to the local telephone company. Line charges listed as "Local telephone company cost" are the line fees by the local telephone company.

6 = Carrier files different rates for each state.

7 = MCI has a \$50 setup fee for extended coverage beyond the 48 states.

8 = Until March 1990, Microtel will waive the \$75 installation charge.

9 = Due in 1990.

10 = SouthernNet is waiving the \$10 setup fee for at least the next 30 days.

11 = Virgin Islands due in third quarter, 1989.

12 = All T-3 access coordination fees set on an individual case basis in AT&amp;T Tariff 11, Section 12.

13 = Microtel is a subsidiary of Advanced Telecommunications Corp. which covers a 10-state region. As part of this, Microtel be will expanding service, first in Texas (3rd quarter, 1989).

14 = All monthly line charges are at local telephone company cost per line.

15 = Telco cost refers to the fee charged by the local telephone company.

SOURCE: TELECHOICE, INC., ALEXANDRIA, VA.



(continued from page 21)

US Sprint's Direct 800 and FONLine 800 services still have a tapered rate structure, necessitated in part by its present billing system. This tapered billing can cause confusion on the monthly bill. For instance, call detail can list different call costs for the same call, depending on what time of month the call was made. This is because calls are priced as they are made. Once a taper point is reached, later calls are billed at the lower taper rates.

When US Sprint moves to its new billing program, due to be completed by the end of 1990, it will adopt a discount plan similar to those of AT&T and MCI, ending the tapered use format. Significantly, US Sprint's high-volume 800 product, Ultra WATS 800, does not have tapered rates and looks like AT&T's Megacom and MCI's 800 services.

AT&T and MCI both have additional discount tables for their 800 services. AT&T revised its Revenue Volume Pricing Plan (RVPP) in February. Basically, the carrier boosted the discounts, offering higher discounts at the lower levels of usage to encourage low-end users to go with AT&T.

AT&T wanted to build into its rate usage plans a means to recognize a customer's total purchase of AT&T 800 services and a way for the customer to grow within AT&T. To accomplish this, AT&T will start including intrastate Megacom 800 Service and 800 Readyline monthly billings to determine the applicable RVPP discount level. As customer usage grows, so do the discounts.

The long-term plans — providing additional discounts in return for a contractual commitment of one to five years — are a fairly new arrival. AT&T has been pushing hard at the Federal Communications Commission for approval of long-term discount plans for all its services. In February, AT&T introduced three new term plans.

AT&T also has three fixed-term pricing plans: the 800 Location-Specific Term Plan, the 800 Customer-Specific Term Plan and the 800 Guaranteed Validator Term Plan. As with other AT&T plans, each of these requires a customer to commit to a specific monthly usage level for a fixed term in return for additional discounts off basic service rates. As with the RVPP, intrastate AT&T 800 Readyline and Megacom 800 usage are aggregated with the interstate usage to determine the appropriate level of discount.

MCI has a range of volume discounts and long-range plans of its own, offering 5% to 20% off standard rates for 800 usage. MCI also has a multioption discount plan that allows multisite customers to receive additional discounts on combined usage, similar to AT&T's RVPP. MCI just recently filed its Value Insurance Plan, which provides users with extra discounts for 18- and 36-

month commitments.

US Sprint, as mentioned, has built 800 discounts into its pricing structures. The carrier also offers a Network WATS discount package that ties in usage from WATS, 800 and other US Sprint products, promoting a total US Sprint package. That plan also provides incentives for users to stay with the carrier by offering a signing bonus of 10% average monthly usage after one year. Longer term discounts, however, are not available at this time.

Other competing carriers are more flexible in their pricing packages, as most are not subject to tariffs.

#### Access methods changing

One of the more publicized changes in the 800 industry has been access methods. The hottest selling 800 services today are the business line-terminated services, such as MCI's Business Line 800, US Sprint's FONLine 800 and AT&T's Readyline.

In the past, toll-free service meant dedicated circuits terminating in a private branch exchange. This involved extra ports and possibly extra hardware. When the lines weren't being used for inbound 800 calls, they typically could not be used for anything else.

Times are changing. Access is becoming more economical and more efficient. Business-line 800 services use standard local telephone lines to terminate calls, so companies don't need extra facilities. And when there are no inbound 800 calls, the lines can be used for WATS calls, local calls or whatever. For the average company, this means cutting down on the total number of trunks leading into a PBX, thereby lowering monthly circuit costs.

T-1 is also a hot access method. Businesses are finding it less expensive to replace analog access facilities with T-1 lines for access to WATS, private line, International Direct Distance Dialing and other long-distance services. Toll-free services can piggyback on these circuits as well. This makes the single T-1 circuit more useful to a company's long-distance needs.

Finally, carriers are generally phasing out WATS access line (WAL) 800 services. In most states, changes in switched access rates have forced the carriers to emphasize the dedicated access line-based and T-1-based services over the WAL options. However, in states such as Texas and California, where WAL rates are lower than dedicated facilities, carriers push the WAL-based options.

#### 800 Coverage expansion

Toll-free services are expanding in coverage as well. While AT&T, MCI and US Sprint are working to provide worldwide inbound services to the U.S., small regional carriers are expanding their products to cover larger sections of the U.S. The result is

more options for users.

All the carriers are securing intelligent network links with the world's largest carriers — British Telecommunications PLC, Cable & Wireless PLC, Kokusai Denshin Denwa, Ltd. and others — so that cooperative long-distance services may be offered. Joint virtual network products have already been announced. Toll-free services are next.

Because number portability is not a problem with international 800 services, they are likely to be a lot more competitive sooner than their domestic counterparts. The foreign telecommunications entity translates the toll-free number before it gets to the international carrier's gateway. These

case. AT&T and MCI both offer service to Canada, and US Sprint started on July 1. The big difference here is that MCI and US Sprint treat Canadian service as an add-on service to domestic 800 service.

MCI customers pay \$50 to open their current 800 service to Canada; US Sprint will charge a \$100 installation fee per account but is waiving that fee through 1989. Interestingly, MCI will allow customers to bring up select area codes in Canada, effectively allowing users to block calls, say, from the entire west coast of Canada if they wish. AT&T will allow users to select from three Canadian bands.

AT&T, however, treats Canada

This will be tricky and will not come about overnight. The same evolution that brought features up a few at a time in the domestic networks will apply to international services as well.

#### Regional carriers growing

Regional carriers are also seeking to expand their markets. Carriers such as SouthernNet, Teleconnect, Litel Telecommunications Corp., Microtel, Ltd. and Rochester Telephone Corp. (with its RCI Corp. subsidiary) are working to grow outside of their sectional markets. In some cases, the toll-free expansion represents a different focus for the carrier.

Microtel, for instance, is looking to launch an in-state Texas 800 service, although all of its other switched services historically have been confined to Florida and Georgia. Look for a number of new competing national 800 services in the next year.

ITT Corp. has also announced a July launch of its 800 services. The national carrier intends to roll out its toll-free services in California and then hit the East Coast. ITT hopes to complete its national rollout by December.

With more carriers moving into larger markets, the typical end user will have more choice. This is especially true for companies in states such as Texas, California and New York, where as many as 10 carriers could be providing 800 service by this time next year.

#### Network intelligence

Of the changes occurring in the toll-free market, however, network intelligence has the most sweeping impact on 800 services. The long-distance carrier networks used to be largely driven by hardware: switches, junction boxes, physical connections and the like. However, as computer technology has become more sophisticated, so have the carrier networks. Increasingly, networks are software-controlled, manipulated by programs that control the way the network operates and routes calls.

Network intelligence allows carriers to determine that a call is destined for a particular company and, therefore, is bound to a particular set of calling restrictions and instructions assigned to the account. Such routing instructions could include time-of-day routing and numbers to be blocked. In general, carriers can add more functionality by simply installing new computer programs.

A key part of network intelligence is the signaling system used to transmit information about a call through the network. Signaling System 7 (SS7) is the most advanced signaling system available today, and it's necessary for the implementation of Integrated Services Digital Network services.

(continued on page 37)

### International toll-free service by AT&T and MCI

Of the major toll-free providers in the U.S., only AT&T and MCI Communications Corp. have international 800 service (calling from other countries into the U.S.).

Country	AT&T	MCI
Antigua	Yes	No
Aruba	Yes	No
Australia	Yes	Yes
Bahamas	Yes	No
Barbados	Yes	No
Belgium	Yes	Yes
Bermuda	Yes	No
British Virgin Islands	Yes	No
Cayman Islands	Yes	No
Denmark	Yes	Yes
Dominican Republic	Yes	No
Finland	Yes	No
France (includes Monaco)	Yes	Yes
Germany, Federal Republic of	Yes*	No
Greece	No	Yes
Hong Kong	Yes	Yes
Israel	Yes	No
Italy (includes San Marino & Vatican City)	Yes	Yes
Jamaica	Yes	No
Japan	Yes	Yes
Korea, Republic of	Yes	No
Netherlands	Yes	Yes
Netherlands Antilles	Yes	Yes
Norway	Yes	No
Panama	Yes	No
Philippines	Yes	No
St. Kitts and Nevis	Yes	No
St. Maarten	Yes	No
Singapore	Yes	No
Sweden	Yes	Yes
Switzerland (includes Liechtenstein)	Yes	Yes
Trinidad and Tobago	Yes	No
Turks and Caicos Islands	Yes	No
United Kingdom	Yes	Yes

There are also a few toll-free service brokers in the U.S. that sell toll-free numbers not only into the U.S. from other countries, but also between foreign countries. These brokers coordinate the installation, billing and handling of the service. In form, their fees are similar to those of AT&T and MCI. However, their fees are generally fairly high, especially the up-front deposits.

\* Available only from mainland U.S.

SOURCE: TELECHOICE, INC., ALEXANDRIA, VA.

foreign carriers are developing their access methods so they can identify the U.S. carrier for each toll-free number. Thus, a user can easily change carriers without changing the international toll-free number.

Each long-distance carrier must negotiate individual agreements with each foreign country it wishes to serve. This takes time. AT&T is certainly the leader in this area, serving more than 30 nations. MCI is catching up, with access from 13 countries. US Sprint says it will announce its first international toll-free countries in the first quarter of 1990.

Canada is quite a different

as a separate country. Users are required to have a separate access line for Canadian calls. This means an extra port on their PBX to handle the calls. AT&T does not allow customers to use the same 800 number as in the U.S.

In fact, if users were to order 800 service for intrastate, interstate, Canada and one other foreign country, they would need four access lines with AT&T, but only one with MCI and US Sprint.

The next challenge will be to link the network intelligence in the various foreign and domestic networks involved so advanced 800 features in the U.S. may also be used overseas, and vice versa.



## NETWORK WORLD

## 800 services comparison (continued from page 24)

## WATS access line (WAL) termination method

Carrier	800 service	Target market: Hours per month/Dollars per month	Pricing method	Originating coverage	Onetime installation charges	Monthly recurring charges	Special access surcharge	Call rounding	Minimum average time requirement
AT&T Basking Ridge, N.J. (800) 222-0400	800 Service	100 to 500 \$1,200 to \$6,000	Virtual banded	50 states, Puerto Rico, Virgin Islands, Canada, 31 other countries	Service charge: \$99 (3) Line charge: \$266.50 per line	Service charge: \$20 per service group Line charge: \$36.70 per line	WAL: \$27.40 per line	1 second	30 seconds
ITT Communications Services, Inc. Secaucus, N.J. (800) 526-3000	Custom WATS 800/Option 802 (4)	25 to 45 \$300 to \$550	Virtual banded	50 states, Puerto Rico, Virgin Islands	Service charge: \$150 Line charge: \$150 per line	Service charge: \$20 per service group Line charge: local telephone company cost	State-specific (6)	6 seconds	30 seconds
MCI Communications Corp. Washington, D.C. (800) 888-0800	800 Service - Switched Termination	0 to 350 0 to \$3,400	Virtual banded	50 states (7), Puerto Rico, Virgin Islands, Canada, 13 other countries	Service charge: \$50 Line charge: \$150 per line	Service charge: \$20 per service group Line charge: local telephone company cost	WAL: \$36.25 per line	6 seconds	30 seconds
SouthernNet, Inc. Columbia, S.C. (800) 478-1234	Business 800	25 to 800 \$300 to \$1,900	Virtual banded	50 states	Service charge: none Line charge: \$100 per line	Service charge: none Line charge: \$36.50 per line	WAL: \$36.25 per line	6 seconds	30 seconds
Teleconnect, Inc. Cedar Rapids, Iowa (800) 728-8888	800 SuperWATS Plus	20 to 600 \$250 to \$6,000	Virtual banded	50 states	Service charge: \$150 per line Line charge: \$68 per line	Service charge: none Line charge: \$34 per line	\$36.25 per line	6 seconds	30 seconds

## Local line termination method

Carrier	800 service	Target market: Hours per month/Dollars per month	Pricing method	Originating coverage	Onetime installation charges	Monthly service charges (14)	Call rounding	Minimum average time requirement
Allnet Communication Services, Inc. Birmingham, Mich. (800) 482-4848	InstantLine 800	10 to 600 \$125 to \$8,000	Region-specific	Mich., Ohio, Ind., Ill., Wis. (1)	Service charge: \$70 (2) Line charge: local telephone company cost (5)	\$20 per service group	6 seconds	30 seconds
AT&T Basking Ridge, N.J. (800) 222-0400	Readyline 800	0 to 5,000+ 0 to \$50,000+	Virtual banded	50 states, Puerto Rico, Virgin Islands	Service charge: \$97.50 Line charge: local telephone company cost	\$20 per service group	1 second	30 seconds
ITT Communications Services, Inc. Secaucus, N.J. (800) 526-3000	Custom WATS 800/Option 801 (4)	10 to 25 \$100 to \$300	Virtual banded	50 states, Puerto Rico, Virgin Islands	Service charge: \$150 Line charge: local telephone company cost plus \$75/line	\$20 per service group	6 seconds	30 seconds
Litel Telecommunications Corp. Worthington, Ohio (800) 837-0004	Easyline 800	5 to 700 \$60 to \$7,000	Virtual banded	Ohio, Ind., Ill., Mich., Pittsburgh LATA	Service charge: none Line charge: local telephone company cost	\$12 per service group	6 seconds	30 seconds
	Nationwide 800	5 to 700 \$60 to \$700	Virtual banded	50 states	Service charge: \$50 Line charge: \$20 per line	\$20 per service group	6 seconds	30 seconds
MCI Communications Corp. Washington, D.C. (800) 888-0800	Business Line 800	0 to 350 0 to \$3,400	Virtual banded	50 states (7), Puerto Rico, Virgin Islands, Canada, 13 other countries	Service charge: \$75 Line charge: local telephone company cost	\$20 per service group	6 seconds	30 seconds
Microtel, Ltd. Vancouver (800) 225-7778	LaserPLUS 800	0 to 200 0 to \$1,500	Flat rate; tapered rate schedule based on hour usage	Fla. and Ga. (13)	Service charge: \$75 (8) Line charge: local telephone company cost	\$14.50 per service group	6 seconds	30 seconds
RCI Corp. Rochester, N.Y. (800) 828-2733	800 Plus	0 to 500 0 to \$5,000	Virtual banded	50 states (9)	Service charge: \$50 Line charge: local telephone company cost	\$20 per service group	6 seconds	30 seconds
SouthernNet, Inc. Columbia, S.C. (800) 476-1234	800 Anyline	5 to 800 \$50 to \$1,900	Virtual banded	50 states	Service charge: none Line charge: local telephone company cost	\$20 per service group	6 seconds	30 seconds
	Personal Hotline	0 to 5 0 to \$100	Flat rate	50 states	Service charge: \$10 per service group (10) Line charge: local telephone company cost	\$2.75 per service group	1 minute	1 minute
Teleconnect, Inc. Cedar Rapids, Iowa (800) 728-8888	800 SuperWATS Plus	20 to 600 \$250 to \$6,000	Virtual banded	50 states	Service charge: \$49 per line Line charge: local telephone company cost	\$20 per service group	6 seconds	30 seconds
	800 Profitline Plus	30 to 150 \$500 to \$1,500	Flat rate	50 states	Service charge: \$49 Line charge: local telephone company cost	\$15 per service group	6 seconds	30 seconds
	800 Profitline	3 to 30 \$75 to \$500	Flat rate	50 states	Service charge: \$49 Line charge: local telephone company cost	\$15 per service group	6 seconds	30 seconds
	800 Personal Hotline	0 to 3 0 to \$75	Flat rate	50 states	Service charge: \$10 Line charge: local telephone company cost	\$2.75 per service group	1 minute	1 minute
US Sprint Communications Co. Kansas City, Mo. (800) 877-6000	FONLine 800	0 to 500 0 to \$5,000	Virtual banded	50 states, Puerto Rico (11), Canada (9)	Service charge: \$50 Line charge: local telephone company cost	\$10 per service group	6 seconds	30 seconds

1 = 48 States due by the 4th quarter, 1989.

2 = "Free Plus" offer in effect: \$70 setup fee is waived, 500 free personalized postcards, "6 Month Dividend" equal to 10% of total usage amount greater than \$2,500. Six-month period begins with fourth full month of usage and ends with ninth full month. Credited on 10th month invoice.

3 = Waiving nonrecurring charges associated with combining routing arrangements or changing service areas from July 1, 1989 through Dec. 31, 1989.

4 = Nationwide service effective Jan. 1, 1989. National rollout starts July 1, 1989 with California and select Western U.S. states, followed by Northeast U.S., Southern U.S., Mid-West U.S. and the rest of the nation.

5 = For local line terminated services, the customer uses standard business lines to terminate calls. Most 800 providers do not charge extra for the local lines since the user pays for these directly to the local telephone company. Line charges listed as "Local telephone company cost" are the line fees by the local telephone company.

6 = Carrier files different rates for each state.

7 = MCI has a \$50 setup fee for extended coverage beyond the 48 states.

8 = Until March 1990, Microtel will waive the \$75 installation charge.

9 = Due in 1990.

10 = SouthernNet is waiving the \$10 setup fee for at least the next 30 days.

11 = Virgin Islands due in third quarter, 1989.

12 = All T-3 access coordination fees set on an individual case basis in AT&amp;T Tariff 11, Section 12.

13 = Microtel is a subsidiary of Advanced Telecommunications Corp. which covers a 10-state region. As part of this, Microtel will be expanding service, first in Texas (3rd quarter, 1989).

14 = All monthly line charges are at local telephone company cost per line.

15 = Telco cost refers to the fee charged by the local telephone company.

SOURCE: TELECHOICE, INC., ALEXANDRIA, VA.



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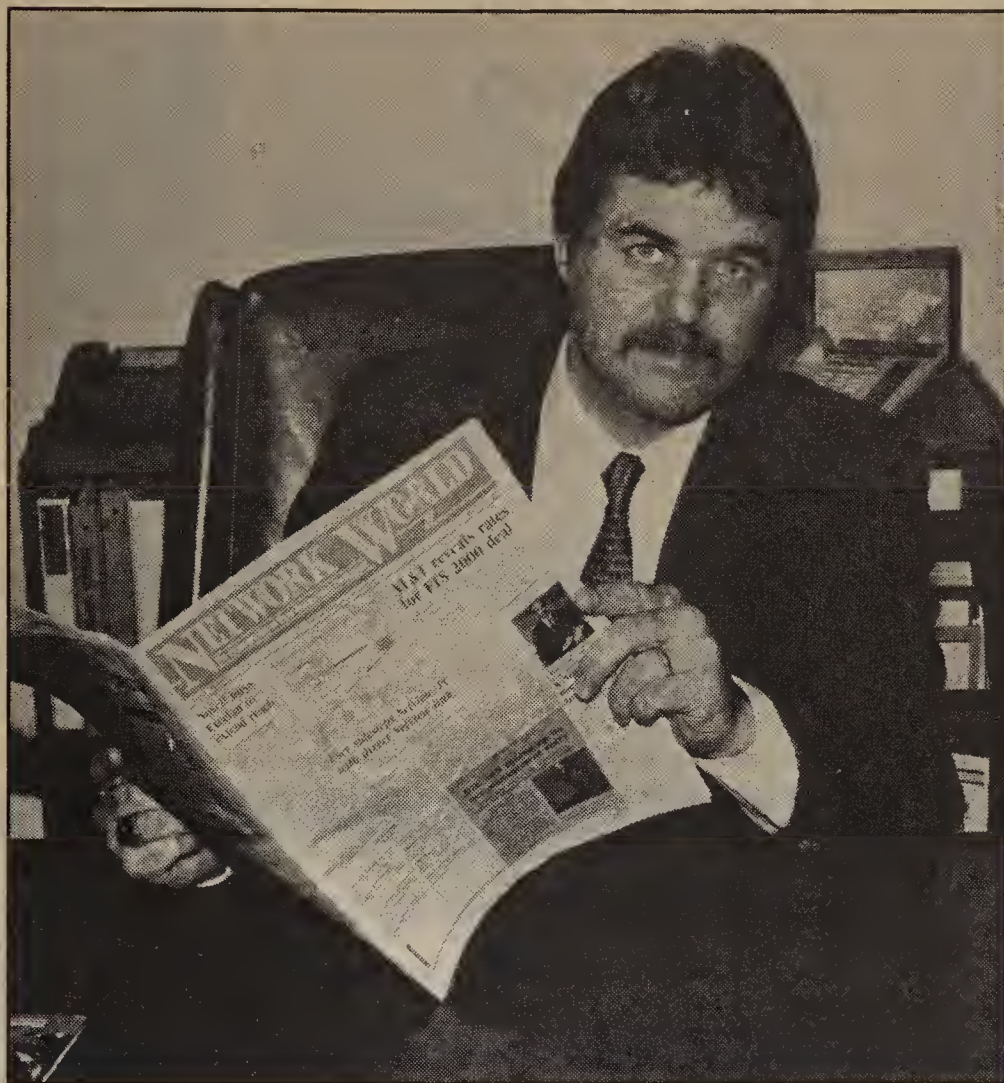
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*“Network World* seems  
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Creative Director  
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The agency of record for a number of high technology, electrical/electronic, and aerospace companies, Ad Infinitum of Sunnyvale, California, is responsible for spending client advertising dollars wisely. That's why, after careful evaluation, Creative Director Glenn ImObersteg is recommending allocating much of the advertising of one major client — Nevada Western — to *Network World*.

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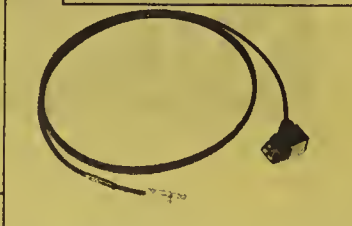
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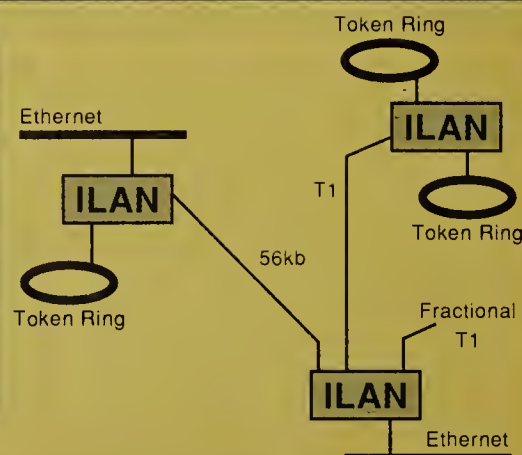
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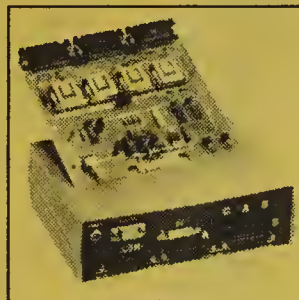
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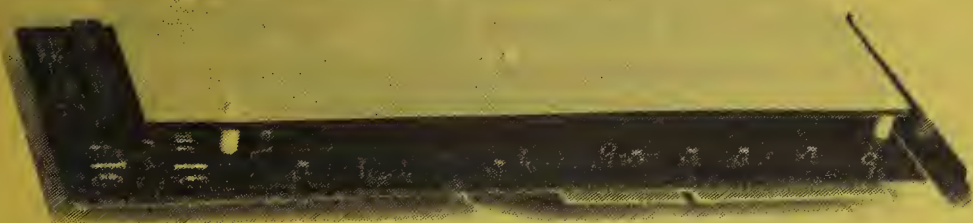
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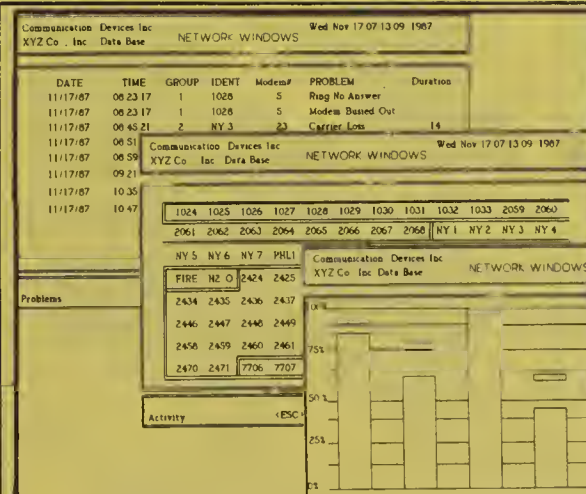
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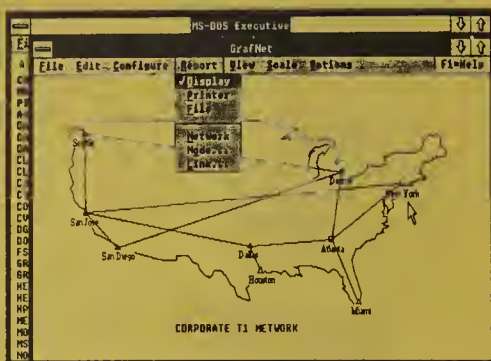
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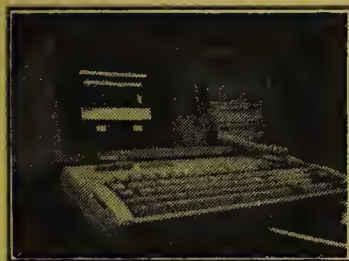
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## NETWORK WORLD

## Advanced 800 service features

Carrier	800 service	Area code routing	Automatic number identification	Band advance	Call allocator	Call attempt profile	Call intercept	Call prompter	Command routing	Dialed number identification	800 referral service	Route advance	Routing control service	Standard area selection	Tailored call coverage	Time and day routing	Uniform call distribution
<b>Alinet Communication Services, Inc.</b> Birmingham, Mich. (800) 482-4848	InstantLine 800	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
<b>AT&amp;T</b> Basking Ridge, N.J. (800) 222-0400	Megacom 800 Service	Yes	Yes	Yes (1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes (13)	Yes (1)
	800 Service	Yes	Yes	Yes (1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes (13)	Yes (1)
	800 Readyline	No (2)	Yes	No	No (2)	Yes	No (2)	No (2)	No (2)	No	No (2)	No	No (2)	Yes	Yes	No (2)	No
<b>ITT Communications Services, Inc.</b> Secaucus, N.J. (800) 526-3000	Custom WATS 800/Option 801	No (9)	No	No	No (9)	No	No	No	No	No	No	No	No	No (9)	No (9)	No (9)	No
	Custom WATS 800/Option 802	No (9)	No	No	No (9)	No	No	No	No	No	No	No	No	No (9)	No (9)	No (9)	No
	Custom WATS 800/Option 803	No (9)	No	No	No (9)	No	No	No	No	No (9)	No	No (9)	No	No (9)	No (9)	No (9)	No (9)
<b>Litel Telecommunications Corp.</b> Worthington, Ohio (800) 837-0004	Easyline 800	No (8)	Yes	Yes	No (8)	No (5)	No (6)	No (8)	No (8)	No (8)	No (6)	No	No	No	No	No (4)	No
	Macroline 800	No (8)	Yes	Yes	No (8)	No (5)	No (6)	No (8)	No (8)	No (8)	No (6)	No	No	No	No	No (4)	No
	Nationwide 800 - Dedicated Termination	No (8)	No (8)	Yes	No (8)	No (5)	No (6)	No (8)	No (8)	No (8)	No (6)	No	No	No	No	No (4)	No
	Nationwide 800 - Local Lines Termination	No (8)	No (8)	Yes	No (8)	No (5)	No (6)	No (8)	No (8)	No (8)	No (6)	No	No	No	No	No (4)	No
<b>MCI Communications Corp.</b> Washington, D.C. (800) 888-0800	800 Service - Dedicated Termination	Yes	No (2, 10)	Yes (1)	Yes	No	No	No	Yes	Yes	Yes	Yes	No	Yes (11)	Yes	Yes (13)	Yes (1)
	800 Service - Switched Termination	Yes	No (2, 10)	Yes (1)	Yes	No	No	No	Yes	No	Yes	Yes	No	Yes (11)	Yes	Yes (13)	Yes (1)
	Business Line 800	Yes	No (2, 10)	Yes (1)	Yes	No	No	No	Yes	No	Yes	No	No	Yes (11)	Yes	Yes (13)	Yes (1)
<b>Microtel, Ltd.</b> Vancouver (800) 225-7778	LaserPLUS 800	No	No (3, 10)	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No (3)	No	No
	LaserEX-PRESS 800	No	No (3, 10)	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No (3)	No	No
<b>RCI Corp.</b> Rochester, N.Y. (800) 828-2733	Net-1 800	No (3)	Yes	No	Yes	Yes	Yes	No (3)	No (3)	Yes	Yes	No (2)	No	No (2)	No (2)	No	Yes
	Prime 800	No (3)	Yes	No	Yes	Yes	Yes	No (3)	No (3)	Yes	Yes	No (2)	No	No (2)	No (2)	No	Yes
	800 Plus	No (3)	Yes	No	No	Yes	Yes	No (3)	No (3)	No	Yes	No (2)	No	No (2)	No (2)	No	Yes
<b>SouthernNet, Inc.</b> Columbia, S.C. (800) 476-1234	Dedicated 800 Service	No (3)	No	No	No	No	No	No	No	No (3)	No	No (3)	No	No	No	No (3)	No (3)
	800 Anyline	No (3)	No	No	No	No	No	No	No	No	No	No	No	No	No	No (3)	No
	Business 800	No (3)	No	No	No	No	No	No	No	No	No	No	No	No	No	No (3)	No
<b>Teleconnect, Inc.</b> Cedar Rapids, Iowa (800) 728-8888	Personal Hotline	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	TRAC 800	No (3)	No (3)	No	No	No (3)	No	No	No (2)	No (2)	No	No (2)	No	No	No (3)	No	No (2)
	800 SuperWATS Plus	No (3)	No (3)	No	No	No (3)	No	No	No (2)	No (2)	No	No (2)	No	No	No (3)	No	No (2)
	800 Profitline	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	800 Profitline Plus	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
<b>US Sprint Communications Co.</b> Kansas City, Mo. (800) 677-6000	Ultra WATS 800	No (2)	No (4, 10)	No	No (2)	No (5)	No (5)	No (5)	No (3)	Yes	No (5)	Yes	No (6)	Yes (11)	Yes	No (3, 12)	Yes (1)
	Direct 800	No (2)	No (4, 10)	No	No (2)	No (5)	No (5)	No (5)	No (3)	Yes	No (5)	Yes	No (6)	Yes (11)	Yes	No (3, 12)	Yes (1)
	FONLine 800	No (2)	No (4, 10)	No	No (2)	No (5)	No (5)	No (5)	No (3)	No	No (5)	No	No (6)	Yes (11)	Yes	No (3, 12)	No

1 = Feature available to all carriers through the local exchange carrier.

2 = Available 3rd quarter, 1989

3 = Available 4th quarter, 1989

4 = Available 1st quarter, 1990

5 = Available 2nd quarter, 1990

6 = Available 3rd quarter, 1990

7 = Available 4th quarter, 1990

8 = Available 1990

9 = ITT nationwide service will offer this feature when fully deployed on Jan. 1, 1990. Custom WATS 800 will be deployed regionally beginning with the state of California in June 1989.

10 = In-band signaling only. MCI will have out-of-band signaling in 1990.

11 = Available through Tailored Call Coverage option.

12 = Available through Tailored Call Coverage, Time Manager and Day Manager options.

13 = Incorporates Day Manager and Time Manager options.

SOURCE: TELECHOICE, INC., ALEXANDRIA, VA.



(continued from page 25)

US Sprint and MCI have installed SS7 systemwide; AT&T is steadily upgrading its network and should be finished in 1990. In the meantime, AT&T is using the SS6 protocol.

### Blossoming features

Network intelligence drives the carriers' advanced 800 service feature options (see chart, page 36). AT&T has had a longer time frame to develop many of its sophisticated network options, so it comes as no surprise that the carrier's advanced feature offerings are the most complete in the industry.

MCI, however, has been stressing advanced features and intelligent network development for all of its services. Its 800 products offer a range of features similar to AT&T's.

MCI is working on developing customer access to its 800 services similar to AT&T's routing control service, so that users can dynamically control 800 circuits in conjunction with other MCI products. Also, MCI expects to add voice processing equipment to its net, which will enable users to intercept 800 calls with both routing-specific and customer-specific announcements.

US Sprint is now concentrating on adding feature functionality. The carrier will implement a flurry of 800 service features in August aimed at catching up to AT&T and MCI, and has scheduled a series of feature enhancements through mid-1990.

### Regionals hop aboard too

The regional carriers are just starting to enhance their products with extra features, as most of them are concentrating more on expanding their market area. Of the basic features characteristic of the regional services, single number service — using the same number for interstate and intrastate service — is the most common. These regional 800 services will likely appeal to the lower end of the market that needs inbound toll-free calling but not much else.

Among the more popular features now among all carriers are:

- Automatic number identification.
- Call allocator — permits a customer to allocate calls between locations by determining the percentage of calls each location should receive.
- Route advance — permits the re-routing of a call when all dedicated 800 circuits are busy.
- Time and day routing — permits calls to be routed differently according to the time or day the call is placed.
- Tailored call coverage — permits customers to designate regions from which calls may originate. Similar to standard service area selection, which allows a customer to choose service area coverage.

It can be difficult to compare 800 services, due to the different

terms and network technologies among the carriers. AT&T and US Sprint tend to use many of the same terms in defining their features, but MCI typically calls the functions by another name. For instance, AT&T and US Sprint have area code routing, while MCI has point-of-call routing. All three allow the user to route calls differently according to the area code from which the call originates.

### Data base access

The biggest network intelligence issue has been access to number translation data bases

This left the local phone companies in a predicament. Somehow the telephone numbers had to be translated to 10-digit public numbers for completion. AT&T's competitors developed their own data bases to do this. But then the local telephone companies faced the problem of having to know which 800 number should be sent to which carrier.

The result was that the FCC ordered the Bell operating companies to develop their own data bases driven by the SS7 signaling protocol. These new data bases are referred to as the Line Information Database (LIDB). However,

## The future of 800 service to the home

Competition for the residential market is taking interesting twists lately.

With AT&T, MCI Communications Corp. and US Sprint Communications Co. heating up the low-end marketplace with special residential buying plans, Telecom\*USA, Inc. is launching a new service called Personal Hotline. For a mere \$2.75 per month plus 29 cents per minute, homeowners can get what will likely be the latest fad: their own 800 numbers.

Picture it: 1-800-THE TEDS, 1-800-TOMMY SMITH, 1-800-BOWLERS.

Pricing for other "business line terminated services," as 800 numbers are called, is also low. AT&T and MCI charge \$20 a month; US Sprint only \$10 per month.

While this may seem like a lot of money, consider the circumstances of an average American family:

- One of the 2.3 kids is in college and calls home a lot. Those calls are now placed via the college's direct distance dialing (DDD) system with rates of around 30 cents a minute.

- The family has one set of grandparents, which it supports. The grandparents call their "kids" once a week to chat for a half hour. Again, likely per-minute costs are around 25 to 30 cents.

- Both the husband and wife have jobs that require travel. Both average one business trip a month. Credit card calls home cost 50 to 80 cents each in sur-

charges, plus per-minute charges of around 25 to 30 cents.

- Finally, put an answering machine at home. Calling in from anywhere, with a credit card, will run the family member a surcharge again, regardless if there are any messages on the machine. And if the call is made from a hotel, who knows what extra surcharges will be lumped on top of that.

It doesn't take long for these credit card surcharges and high DDD rates to pay for an 800 number. Usage rates for business line services are typically less than the DDD rates. For instance, US Sprint's FONLine 800 service, with a fixed fee of \$10 a month, costs only 18 to 23 cents per minute on average — making it less expensive than many residential daytime long-distance rates.

Granted, the 800 usage charges for any of the carriers may not always be cheaper than DDD rates. Some of the low-end 800 services do not discount evening or night/weekend calling.

But the convenience of an 800 number can make up for the few pennies lost. Just think, ten digits instead of 25. And what's more, many of the new providers of toll-free services are opening up exchanges that have not been available before.

If you have been waiting to spell out something special, now may be the time to call your carriers.

— Daniel Briere

that allow an 800 number to be translated into a standard 10-digit telephone number for call completion. To provide its 800 services, AT&T developed a proprietary 800 "INWATS" data base that stores each 800 number and a corresponding public telephone number to be used to route a call through its long-distance network. But AT&T will not let the local telephone companies or the other long-distance competitors use that data base.

er, until that system is in place (due sometime in 1990), the BOCs are using a much simpler screening mechanism to route 800 calls — the NXX method.

Under this method, each long-distance carrier is given a range of NXXs to sell. When a toll-free call is placed, the BOCs screen the first six digits of any 800 call, look up the carrier for that NXX and then forward the call to that carrier's net. The long-haul carrier performs the 800 number-to-

10-digit number translation and handles the call from there. The problem with this is it freezes all AT&T NXXs with AT&T. AT&T customers cannot use MCI without changing the NXX to one on MCI's list. This means changing the entire number.

### SS7 holds the key

Hopes for a speedy move to the LIDB system were dampened in April when the FCC adopted rules tying the transition with development of SS7 in the local telephone network. The commission ordered the BOCs to maintain the 800-NXX access option until they deployed SS7 in all access tandems and in end offices serving more than 80% of their originating toll-free traffic.

While the BOCs can still roll out new data base systems, the FCC's ruling will deter them from forcibly migrating long-distance carriers from the 800-NXX system, meaning many will likely still use the existing NXX plan.

The new data base system will take longer to process a call. The move to the data base without SS7 was squelched because call setup times would increase from the present two seconds to as long as nine seconds. Implementation under a BOC-installed SS7 system would cut total call setup time to less than five seconds.

How long will users have to wait? Full SS7 implementation is not expected until 1991.

### AT&T call referral

In wooing customers from AT&T, competitors are aided by an AT&T 800 Service feature, Call Referral. The FCC ordered AT&T to provide a recording on its network stating that a number has been changed and giving the new number. This is similar to the recording the local telephone company provides when you move across town.

The competition, however, is somewhat hindered by the fact that AT&T provides Call Referral on its Megacom 800 and standard 800 products only. Readyline customers are left to get the word out themselves if they choose to switch. This favors AT&T in the business line-terminated 800 services niche.

AT&T is very protective of its new Readyline client base. The Readyline service has proven to be a phenomenal success for AT&T, much larger than anticipated in early marketing plans. The changes in switched access charges over the past few years have also made Readyline more economical than Standard 800 in most uses. The only drawback is that the Readyline service does not offer the advanced 800 service features of Megacom and Standard 800.

Conversely, MCI's and US Sprint's 800 business line products offer most of the same features as their dedicated 800 products, and those features are growing. MCI and US Sprint have steadily implemented new fea-

tures over the past year.

### Looking to the future

Toll-free services are going to continue growing in the future. Some of the advancements to look for are:

- Multiple locations served by a single number. Advanced 800 prompting messages and routing features will allow customers to control corporate traffic flow among the various locations.

Look for AT&T to increase its emphasis on advanced 800 features as it has a definite lead in this area.

- Globalization of telecommunications. Plunging international transmission costs, driven by an abundance of international fiber and satellite capacity, will allow companies to transfer calls easily among countries.

Picture the international company of the 1990s, with six or seven sales offices located around the globe and one 800 number accessible from more than 100 countries. As each office closes, it transfers the calls to the next office in the chain — keeping the office open 24 hours a day. International virtual networks are just around the corner.

- High growth in the "900" services. Firms will start looking to a combination of 800 and 900 services to fulfill corporate communications needs. The software company of tomorrow, for instance, could offer its patrons free software support for the first 30 days via an 800 number and charged support thereafter via a 900 number.

- Increased use of 800 numbers by lawyers, brokers, accountants, voice mail firms and paging companies as they seek to isolate and bill back customers for use of 800 numbers. By providing each client with his own 800 number, companies can track that client's usage more adequately than through call distributors.

Voice mail and paging companies could take advantage of improvements in technology; a caller could dial an 800 number into a voice mail firm, connect to a voice mailbox, have the person paged and then be cross-connected with that person for live two-way communication. Demand for 800 numbers among these groups is likely to rapidly cut into the available supply of 800 numbers.

- The maturity of the network/premise interface, providing an intelligent linkage between the carrier networks and customer premises equipment. In the not too distant future, customers will be able to assign bandwidth dynamically among different services through customer premise-based terminals.

While 800 numbers were a novelty item for some companies a decade ago, they are going to be a fact of life for the company of the 1990s. If your firm does not have a number now, the question is not whether to get one . . . it's when. □



Letters

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must take the lead and offer specific solutions in the best interests of the industry and the U.S. The FCC is charged with that responsibility, and it is time the commission began to exercise some leadership.

Anthony Pocchia  
Partner  
Natoli and Pocchia  
Attorneys at law  
New York

No systems development

I am writing with regard to the comprehensive, well-written article by James Kobielus entitled "An environment for collaboration" (NW, May 15). While we were very pleased to note a reference to Bell Communications Research, Inc.'s research of experimental inte-

grated multimedia architecture, we believe it is necessary to clarify one important distinction: We do *not* develop conferencing systems, as your article stated.

Systems development is considered part of the manufacturing process. We do, however, produce experimental prototypes that enable us to demonstrate the feasibility of a concept or technology that relates to telecommunications network capabilities. This particular system prototype provides a framework for studying how to interconnect various media over public networks.

Sincerely,  
John Lucas  
District manager  
Media relations  
BELLCORE  
Livingston, N.J.

AT&T plans to pare DDS rates

continued from page 2

Conn., said although he believes the 20% reduction brings AT&T's 56K bit/sec DDS rates more in line with US Sprint Communications Co.'s and MCI Communications Corp.'s rates, it is still not enough to make the service competitive with other alternatives such as T-1 and fractional T-1.

In addition to the pricing adjustments, AT&T also announced a new routing plan designed to offer a higher degree of network

protection for 56K bit/sec DDS circuit users.

Under the Special Routing Custom Diversity plan, three physically diverse routes are provided where available between AT&T serving offices for an extra charge of \$150 per month per circuit, plus a onetime installation fee of \$300. □

Senior writer Paul Desmond contributed to this story.

Europe takes step toward VANs

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group of EC members to the European Court of Justice in Luxembourg to protest a similar EC policy for deregulating communications equipment.

The EC also adopted a proposal last week that would allow voice and data equipment certified by one EC country to be sold throughout Europe. Currently, equipment vendors must receive approval in each country in which they intend to sell.

The EC's progress on the telecommunications front is of great importance to both network users and net equipment vendors in the U.S., said Thomas Ramsey, an

attorney who tracks international telecommunications at the law firm of Squire, Sanders & Dempsey in Washington, D.C.

Common European network equipment and service standards will make installing and managing multinational networks easier for network managers, Ramsey said. Open European markets will be crucial to U.S. vendors that need to augment their U.S. sales, he added:

"U.S. users and vendors will be left in the dust of their European rivals if they don't pay attention to what's going on in Europe," Ramsey said. □

First to enter fractional T-1 field

continued from page 4

mission of synchronous or asynchronous data at 19.2K bit/sec on the same line as a voice call. Multiplexers at New England Telephone central offices route voice to the switched network and data to a private line. DOV Path Service costs \$15 a month.

New England Telephone also filed to offer Digipath Digital Service II, which is a nonhubbed DDS supporting synchronous data at 2,400, 4.8K, 9.6K and 56K bit/sec in either half- or full-duplex. Digipath Data Service II can be used to support intra-LATA point-to-point or multipoint private-line networks or to access inter-

exchange carrier DDSs.

Eliminating the hub used in traditional DDSs reduces mileage charges, Sonnenschein said. With a hub, users had to lease a circuit from their premises to a central office with a DDS hub.

Finally, New England Telephone filed to offer a Secondary Channel Capability as an option for its DDS II. The option enables users to make use of bandwidth within the Digipath circuit that is normally reserved for use by the carrier to transmit network diagnostic data between sites.

If approved, all four services will be available in October. □

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Calendar

July 6-7, San Francisco — PC Networking. Contact: InfoLAN, P.O. Box 162323, Austin, Texas 78716; (800) 526-7469.

July 10-11, Boston — Troubleshooting & Maintaining the IBM PC, XT, AT, PS/2 & Compatibles. Also July 17-18, New York. Contact: Data-Tech Institute, Lakeview Plaza, P.O. Box 2429, Clifton, N.J. 07015; (201) 478-5400.

July 11-12, Toronto — CASE: A Manager's Guide. Contact: Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402; (213) 394-8305.

July 11-14, San Diego — PC Networking: Hands-On Workshop. Contact: Integrated Computer Systems, 6053 W. Century Blvd., P.O. Box 45383, Los Angeles, Calif. 90045; (213) 417-9700.

July 12-14, Los Angeles — Introduction to ISDN. Contact: Integrated Computer Systems.

July 12-14, Washington, D.C. — Defense Data Network. Contact: Systems Technology Forum, Suite 150, 10201 Lee Highway, Fairfax, Va. 22030; (703) 591-3666.

July 17-18, Boston — Understanding Data Communications. Contact: Data-Tech Institute.

July 17-18, Washington, D.C. — 900 Service. Contact: Telestrategies, Suite 100, 1355 Beverly Road, McLean, Va. 22101; (703) 734-7050.

July 17-19, Boston — Open Systems with TCP/IP. Contact: Technology Transfer Institute.

July 17-21, Sturbridge, Mass. — Fiberoptic Workshop. Contact: Fiberoptic Communications Corp., 298 New Boston Road, Sturbridge, Mass. 01566.

July 19-21, Cambridge, Mass. — Understanding ISDN. Contact: BIS CAP International, 77 Rumford Ave., Waltham, Mass. 02154; (617) 891-1550.

July 19-23, Boston — Open Systems Interconnection. Contact: The Omnicon Institute, 115 Park St. S.E., Vienna, Va. 22180; (703) 281-1135.



## Fire, virus only raise awareness

continued from page 4

\$1 million over the past two years for these reasons. About 2% said they had lost more than \$1 million.

"Why do organizations continue to experience financial losses in the very areas [information systems] they are investing the most resources?" asked Gregory Therkelsen, Ernst & Whinney's national director of information systems security.

"The survey results suggest that many may not take a broad

enough view of information security and may be applying their resources too narrowly," Therkelsen said.

Almost 40% of respondents said their business continuity planning is limited to data processing or is performed irregularly, he said.

Only 5% of respondents said their organizations use encryption for confidential data sent over public networks.

When asked about network concerns, only 17% of respondents said the unintended use of their networks is an important issue and 11% rated loss of mes-

sage integrity as important.

### Management awareness

On the bright side, management awareness of network security is strong, Browne said. "The [virus] and Hinsdale events helped to raise awareness greatly," he said.

About 87% of executive-level management respondents said security is an important issue in their organizations. About 28% said their organizations plan to use computer virus detection software, suggesting that they feel vulnerable to the virus threat. ■

## US Sprint may assimilate Telenet

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more fluid organization," said Stan Ratcliffe, vice-president of Telenet's systems integration group.

Industry analysts said the integration of US Sprint and Telenet would provide users with one-stop shopping for voice, data and video networks.

"In the past, a user had to be a systems integrator to deal with [US Sprint] and Telenet," said Howard Anderson, managing di-

rector for The Yankee Group. "These are two very strong organizations that are now working to eliminate this problem."

US Sprint currently offers 45 products, ranging from voice services, including WATS and 800 service, to digital data services, T-1 and fractional T-1, over its 25,000 route mile nationwide fiber-optic network.

Telenet offers private data nets and public packet-switching

services in the U.S. and several dozen foreign countries. The firm provides services including network engineering, consulting and maintenance through its systems integration unit.

US Sprint and Telenet have worked together on major integrated voice/data networking projects for users such as Apple Computer, Inc. and the State of Illinois. In both cases, US Sprint provided the network services and Telenet handled network implementation and operations, according to Telenet's Ratcliffe. ■

## Transport Can. devises plan

continued from page 1

promises to save money by reducing the staff required to support mainframe-based data centers, said Dan Perley, director of intermediate informatics for Transport Canada.

Transport Canada also intends to provide application portability from the workstation to the mainframe level by running its brand of Unix on all its processors. The project will bring the department into compliance with the Committee on Open Systems Application Criteria (COSAC). COSAC is the Canadian version of the U.S.' Government Open Systems Interconnection Profile.

### SNA backbone

Transport Canada, headquartered here, employs 23,000 people and is the second largest Canadian government department, after defense, Perley said. The department's Systems Network Architecture backbone, anchored by an IBM 3084Q mainframe, supports some 3,000 3270-type terminals at about 200 sites nationwide. The network also supports IBM minicomputers at nine regional sites.

The SNA network is used to support an array of financial, personnel and office automation applications.

The burden on the network is increasing as branches of the department turn to automation to contend with national budget cuts that have reduced staffing levels.

Transport Canada's long-term strategy to support increased

processing needs without adding operations staff began evolving last year following the completion of a study to determine its future processing requirements.

The study recommended that the department migrate its network from a three-tiered processor architecture to a four-tiered architecture, said Jim Gazzard, chief of intermediate informatics technology at Transport Canada.

The tiers include: enterprise, a single centralized data center; area, a region supported by a large data processing center; unit, a local, departmental-level minicomputer supporting from five to 50 users; and personal, the desktop level.

The architecture determines where applications run and does not represent a network hierarchy, Gazzard said.

It was clear from the study that the unit-level processors would be key to adding network horsepower without dramatically increasing net management staff, Perley said. It was also clear that Transport Canada needed a strategy to buy and support these processors.

To address that need, the department developed a program whereby any department that wants a minicomputer also has to nominate someone from its own staff to operate it.

When installed, the minicomputers will be linked via an X.25 packet network to a gateway that provides access to the SNA net so users can still access mainframe-based applications and Transport Canada personnel can support the local operator.

In keeping with the effort to migrate toward OSI, X.25 will

evolve into the network backbone as mid-range systems proliferate, Perley said. SNA will exist only around the IBM enterprise and area clusters.

"What we're going to see is a gradual evolution toward an OSI network over the next two, three, four years," Perley said.

"Every time a unit-level system is acquired, 30, 40 or 50 more people become open network users," he said.

### Greater Unix

Each of the mid-range systems will run Greater Unix (GX), Transport Canada's own brand of Unix. Transport Canada developed GX to standardize on a single version of Unix and promote application portability. GX is a combination of Unix System V.4, which is backed by Unix International, and AIX, IBM's version of Unix supported by the OSF.

"Invariably there's going to be a very large overlap at the kernel level between those [versions]," said Michael Plouff, director general of information management services for Transport Canada. "What we hope to do is just tap the intersection of those two kernels and use that as our subset for applications development and operating systems."

Eventually, Transport Canada expects its GX to run on all four of its processor levels, from the desktop, personal level to the enterprise-level mainframes.

Transport Canada will test and certify a maximum of five hardware vendors and three office automation software suppliers, each of which will be asked to bid on all minicomputer purchases, Perley said. ■

## Sikes gets nod to fill FCC post

continued from page 1

by corporations to make the country more competitive.

"The FCC has got to understand the global implications of its decisions," he said.

Sikes, Barrett and Marshall must be confirmed by the U.S. Senate. Sikes said he is hopeful the confirmations will be made by Aug. 5, when Congress adjourns for summer recess.

If confirmed, Sikes will serve until 1993, finishing out the five-year term left vacant when Mimi Weyforth Dawson resigned as FCC commissioner in 1987 to become assistant secretary for the Department of Transportation. Current Chairman Dennis Patrick resigned in April but agreed to remain at the agency until a successor was nominated and confirmed.

The only question now hanging over the FCC is whether Commissioner Patricia Diaz Dennis, whose term ended last week, will be renominated. At press time, an aide to Diaz Dennis said she had not received word about her position. She may remain as a commissioner until a successor is chosen.

Many in Washington last week said they believe Sikes' background will make him a good FCC chairman. He was once assistant attorney general for the state of Missouri; served as the director of consumer affairs, regulation and licensing in the cabinet of former Missouri Governor Kitt Bond; and formed a broadcast management and consulting firm, Sikes and Associates, Inc., in Springfield, Mo.

However, others said privately they fear Sikes may be more of an ideologue than a pragmatist in directing FCC policy. That could antagonize a Congress that has sparred with the past two FCC chairmen.

Legislators complain bitterly that current FCC Chairman Patrick and former Chairman Mark Fowler ignored the will of Congress in carrying out communications policy decisions. As a result, Congress has consistently refused to increase funding or staffing for the FCC.

During his tenure at NTIA, Sikes has been a strong proponent of deregulation of the communications industry.

In 1987, Sikes urged the FCC to allow the regional Bell holding companies into the information services market. Sikes admitted in later interviews that the move was partly intended to spur a confrontation between the FCC and U.S. District Court Judge Harold Greene, who oversees the Consent Decree.

Sikes was also a vocal supporter of the FCC's efforts to implement price cap regulation. Under that plan, a ceiling is placed on the prices carriers can charge customers, as opposed to the current rate of return system, which regulates telephone carrier profits. Some in the industry view

price caps as the first step toward total deregulation of AT&T.

Brian Moir, counsel for the International Communications Association, said the members of his group look forward to working with the new team at the FCC. The ICA has had a long relationship with Sikes, during which he has focused on user issues, Moir said.

"In the international area, [Sikes] played an exemplary role in trying to satisfy concerns in the user community," Moir said. For example, through a series of international discussions, dubbed market access fact finding sessions, Sikes was instrumental in persuading the government of West Germany to offer private-line services, he said.

Michael Senkowski, counsel for the Tele-Communications Association, said the group is optimistic about Sikes' nomination

**"It's important at this time of explosive industry growth to have an FCC chairman who is able, experienced and knowledgeable."**

▲▲▲

for a number of reasons. First, he has been involved in the telecommunications field for some time and "can hit the ground running" on major issues such as Tariffs 12 and 15, and price caps for the local exchange carriers, Senkowski said.

Senkowski also praised Sikes for his openness. "I'm confident we can demonstrate legitimate user concerns [and get a fair hearing]."

Ken Phillips, chairman of the Committee of Corporate Telecommunications Users, said users would benefit because Sikes is experienced and knows the issues facing the telecommunications industry. He also said Sikes is fair-minded and willing to examine all points of view on an issue.

A spokesman for AT&T said the carrier is pleased with the nomination.

"It's important at this time of explosive industry growth to have an FCC chairman who is able, experienced, knowledgeable and willing to listen to all sides when public policy issues face resolution."

A spokesman for US Sprint Communications Co. echoed similar sentiments.

"US Sprint has always found Sikes to be open, available, honest, forthright and knowledgeable on all telecommunications issues," according to the spokesman. ■



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